university of toronto
computing services

UTCS ComputerNews

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The series on Data Security focuses on

APL

this month. "Protection of Online Data" followed by "Backups to Magnetic Tapes" begins on page 15.

A new release of Sharp APL is planned to be installed this Summer. For a preview of its features see page 18.

The Staff Profile this month features the Text Services Group. Meet John, Dawne, and Lidio on page 3.

The Scientific Computing Advisory Service opens its doors this month. See the article on page 7 for details of the service and the new interactive query system.

Disk storage doesn't have to be a mystery. "Getting Started With Datasets" on page 8 begins a series which looks at datasets through the eyes of JW.

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This month's cover graphic was produced using the T-Italic font in SAS/GRAPH.

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Dialogue

A careful reading of this issue of *COMPUTERNEWS* can't help but impress one with the continuous evolution of services offered by UTCS. There are articles about many types of software as well as the services which improve access to the systems. An upgrade of Sharp APL is scheduled for this Summer. The version of UNIX on the PDP 11/70 has been upgraded, providing more access and more features to users. ATMS, as a vehicle for text-processing, is being phased out. It is now possible for faculties or colleges to take advantage of lower terminal maintenance rates negotiated by UTCS. These are just a few of the changes recorded in this issue.

Other aspects of UTCS are also evolving and will have an effect on interactions with our users. The University's never ending quest for more space has once again caused UTCS to consolidate office space. Several staff members moved from 49 St. George last September. During February, the last UTCS staff at 49 St. George made the trek across St. George Street and are now establishing themselves in Room 217 in McLennan Labs. This brings together the Text Group, the Marketing Group, and the Applications Support and Advising Group in one area. Unfortunately, no reasonable way was found to bring the wood panelled atmosphere of 49 St. George over to Room 217, but the hospitality users enjoyed there will still be found amongst the *modern* decor.

Part of the University of Toronto - IBM Partnership agreement was the provision of a number of 3101 terminals. For the past few months, ten of these terminals have been available to users as part of the UTCS Education Facility. In order to distribute access to screens more widely across campus, the 3101 terminals from the Education Facility have recently been removed and reassigned to individual departments. These ten terminals will be replaced by XT100's as soon as possible.

In the January/February issue, Warren Jackson, our new Director, was introduced. In this issue, he begins a new column, "Let's Talk About It", in which he plans to explore a broad range of issues affecting both our users and UTCS. This new column is intended as a forum in which such issues can be examined informally but in depth.

The article entitled "Getting Started With Datasets" in this issue is a starting point for users who have always depended on cards and are leary of moving on to using disk storage, even though it can save money and time. We intend over the next few issues to provide more articles in this style to ease the transition away from keypunches and card readers.

There is much more in this issue than I can comment on here. I encourage you to browse through this issue and become acquainted with aspects of computing which just might help it serve you better.

Bill Fehlner

Let´s Talk About It
- Planning, Priorities, Perspectives

Gentle reader, this is the first in a continuing series of articles or talks, in the form of 'columns from the publisher.' In the articles I will explore a broad range of issues which affect you as users and us as providers of UTCS services. At one time or another, I will consider such issues as: where you and we are headed, which services you think we should offer, how well we are doing, what things you are particularly happy about, what things you think should be changed in our mode of operation, constraints we all operate under, and anything else you would like to dig into. I will try to be as straight-forward and candid as possible, and when I cannot, for whatever reason, I will say nothing.

We made the first presentation of our Annual Plan to the UTCS Review Board on Thursday, February 3, and got through about half of it. The Plan is very complicated, contains far more than we can realistically do, and certainly more than the University can afford. The Plan represents our best efforts to adequately represent the computing needs of the University that could be fulfilled through UTCS for the next year. We also tried to make it part of a long-term grand design in line with the 'Policy on the Use and Development of Computing Services at the University of Toronto.'

I think you may find it interesting to know how we prepared this plan, to avoid the accusation that we plan in a vacuum. We, through individual user contacts, came up with applications that are required. We looked at the overall use of our systems and resources to plan hardware and software changes. We consulted with groups such as the BICS Committee for directions for instructional computing. We followed the recommendation of the Research Access Group. We obviously couldn't talk to you all, but if you have a particular need, you should let us and the Review Board know. We have distributed a summary of our Plan to the UTCS Users' Committee for comment. We (Wendy Chin, Allen Heyworth, Eugene Siciunas and I, not the royal we) tried not to filter it to any great extent, except to make sure everything that appears is a valid activity. We have explored alternatives, including costs and all other sorts of ramifications. We feel that everything which appears in the Plan represents valid needs for some parts of the University community. Because there is obviously too much there, we are going to need a great deal of guidance about what is finally included. Professor Nowlan and the Review Board (or its successor) are helping us to select and prioritize the various activities, additions, deletions, and purchases that we have presented.

To be perfectly honest, what we're trying to do this year is to get out of the middle in the whole process. We do not want to be seen as a group that elevates the interests of one set of our users over another. We prefer to be seen as (actually to be!) a group that does a clearly defined set of tasks quite well. In particular, we want to use the Review Board or its successor in prioritizing needs across all the different generic groups that you represent. We would classify these groups as 1) Research, 2)Instruction, 3)Administrative (Capital 'A' we say), 4) administrative ('a', e.g. departments and faculties). Even within these groups, the needs are obviously not homogeneous, and satisfying one special group of users can alienate other subgroups. Prioritizing across these groups is definitely a role we want to relinquish. I feel that this is a matter of University policy.

continued...

Let's Talk About It continued

Following along the same train of thought, in the past UTCS has been seen as being an advocacy body for various needs. This is again a role we are trying to drop, except at a very detailed level where we have the freedom to act on our own initiative and under circumstances where what we do for one group will not affect anyone else unduly. In these tough times, with very limited resources, trying to adequately represent one user group's interest is a no-win situation. If we are successful, it does not really help us very much, and if we are not, we wind up being the goat. That is why I would suggest, as I have at the last UTCS User's Committee meeting, that you not only advise us but also lobby for yourselves.

Over the past month or so, I have met a fair number of you. Through these meetings and various other channels I am starting to get a feel for where we fit into the University community and how we are viewed by you. To let us get a handle on what you are doing and how you view us, there is a questionnaire included in this Newsletter; I would like you to fill it out and return it to me. I will keep your replies relatively confidential (within our Management Team), so please be as candid as possible, and sign them if you wish.

My impression is that we are certainly not satisfying all of you equally well. Another observation is that various sectors of the university community have incredibly long memories, particularly for the obligations and short-comings of the past. I discovered all sorts of sweetheart deals and historical ill feelings that are really anachronisms. I would like us to impose a 'statute of limititions' on these if at all possible. If we don't, nothing will really change, and we will drag all this stuff behind us forevermore.

After all this pontificating, you may well say 'Big deal — he has only been here one month; what does he know?' It could be that you are right, but if I am wrong, tell me. Write to me (and let me know if I can reference or print your letters). As I gain knowledge and, hopefully, new insights, I will share them with you in future Newsletters. If you have specific areas you would like me to explore, let me know. I have tried to be deliberately provocative here to encourage dialogue and open unfettered discussion. Let's talk about it!

Warren Jackson

Text Services Group

UTCS offers a variety of text products to its user community. In order to improve and unify text services, the Text Services Group was formed in Spring 1980. A wide range of text products were available at that time and future development of additional products was imminent. In recognition of the growing importance of text services and to prevent duplication, the Text Services Group became responsible for planning, co-ordinating, developing and supporting the services available.

The Text Services Group consists of three people: John Bradley, Lidio Presutti, and Dawne Smith. All three had worked in different areas of UTCS before joining Text Services. John, who is the Supervisor of the group, was previously responsible for WYLBUR and also had responsibilities in various other text products such as RUNOFF. Lidio, who is the Technical Support Programmer of the group, worked in the Application Support Group where he did some text work and contract programming. Dawne Smith is the Instructor/Technical Writer for the Group. Dawne previously worked as Co-ordinator for Information Services. Both John and Lidio have been with the Text Services Group since it's for-

continued...

Text Services continued

mation and Dawne has been with the group now for 20 months.

In the remaining part of this article John, Dawne, and Lidio will explain the different aspects of the Text Services Group.

What is Text Services?

- Text Services is a group of friendly people whose purpose is to provide users of UTCS' text products with assistance. The main purpose of Text Services at this time is to support text processors. We are also involved with introducing, installing, and maintaining packages. We provide training and advising for new and existing users and provide support for other UTCS people. We write documentation and sometimes we help with special projects for users with particular needs who, for some reason, are not in a position to do it themselves. The group assists in areas where the use of computers has not been widely used before, e.g., in liberal arts

  The text area falls into two categories: support of what is called text processing (the preparation of documents of various types using a computer for assistance) and text analysis. Text analysis is a different type of area for which we provide programs and support. One example of text analysis is determining the authorship of Shakespearean plays by comparison with manuscripts of known authorship.

What are your roles in the Text Services Group?

- **Dawne:** The main part of my job is to offer instruction to people within the university community who have accounts with us and want to use one of our supported products for the use of text preparation.

  In addition, I write documentation for new text products or existing products which do not have proper text documentation. I edit existing documentation of the products we teach, develop or promote to keep it up-to-date. After each course I reassess the documentation used, making sure it satisfies the needs of the course and the product. I am neither a programmer nor a regular user, therefore, I fall between those two worlds and try to bridge them by acting as a sophisticated user who can assess the situation. My contact with other users, through teaching and consulting, also helps to bridge the gap.
- **Lidio:** I was hired as Technical Support Programmer. My responsibility is to know the text programs and to support and maintain them. If there are problems with the programs I try to fix them or have the appropriate people fix them, either the distributor or person who wrote the program. In addition I help users who have technical needs. I also develop software for various applications, currently the Xerox 9700 printer.

  I am also involved with special projects; most notably my involvement in the Dictionary of Old English project. I have written some special programs to sort the word indexes. My programs do a number of things such as sorting on four different levels, which is not a trivial task.
- **John:** I supervise Dawne and Lidio and since they work independently, I have time for other things. I try to keep aware of what is going on in the text processing area, as well as in the word processing and office automation area. I like to keep aware of what our users want, the direction they are moving in, and what they are asking for. In this way we can look for tools and try to answer their particular needs. I am also involved in co-ordinating projects that involve text applications but which are not done totally in this group. For example, I was Co-ordinator for development of the UNIX text processing service. This project principally involved the people in this group but also involved working with people in other parts of UTCS.

continued...

Text Services continued

Goals

- Our general philosophy is to train people to do things for themselves. This is consistent with our goal to provide support to our users of available text related products. We do that in essentially four ways. First, we provide support for existing packages so they continue to run and remain up-to-date. Secondly, we provide training and support for the users of existing packages so they are more comfortable using them and can take full advantage of their features. Thirdly, we encourage use of our packages by providing people with assistance in doing things which don't fit into an existing package. Fourth, we try to keep aware of what people are doing, what packages are available, and what things we can put in place so that people can accomplish what they are doing easily.

What interaction do you each have with users?

- **Lidio** Not too many users have the pleasure of my company. The people I do have contact with are in sophisticated situations that require my technical knowledge and assistance. I indirectly help quite a few users by being involved in the development of new services and packages, e.g., text processing enhancements for the Xerox 9700.
- **Dawne:** I am involved with people who have never sat at a computer terminal or used a computer system before. Alternately some of the people who attend our text courses have had some computer experience. The audience is mixed. Some are very leary or apprehensive about this world that they are being thrust into, usually by circumstances in the work place. I help them become more comfortable with the tools available for text processing and provide documentation that makes sense to users, and consulting in situations not requiring John's or Lidio's expertise.
- **John:** I think that all of us help users on an individual basis with specific problems. My interactions often involve project planning or co-ordination.

Do you encounter any problems?

- Selecting new packages is generally much easier than obtaining the necessary funding to acquire them. Expensive packages often arrive from the vendor and don't work as expected.

How do you help a user choose a system?

- Those users who are already familiar with a system pick a text processing system to suit that specific environment. In this case it is often a matter of making accommodations for what they may need. New users who want to begin text processing can be more flexible in choosing a system. In this situation we are able to recommend a particular system best suited to their needs.

Should users who are interested in text processing come to Text Services or is there a specific avenue they should follow?

- One starting point for a new user is the Marketing Group. We also receive references directly from Central Advising when they recognize that Text Services can best assist in resolving a user problem.

What satisfaction do you get from your job?

- **Lidio:** The users that I've met have been very pleasant and are doing interesting work. I'm interested in learning more about what they do and at the same time try to help them. I also like the fact that my job exposes me to a number of different environments in the computer industry. I like the people I work with and work well with them.
- **John:** There are several aspects of my job which I get pleasure from. I like learning new things on a technical side and I like seeing things I've been in-

continued...

Text Services continued

volved with working as planned. I get pleasure from helping users and seeing them get the types of things I think they want. As a supervisor, there is a certain pleasure in being able to initiate and coordinate projects through to completion. The TBL course developed primarily by Dawne is one example. I've also done some teaching and being able to talk about ideas and seeing people pick up on them can be very rewarding.

- **Dawne:** I agree with John that one gets a sense of continuity from a job well conceived, well formed, well done, and is supported and continues to give users what they need. The other thing for me is the concept of the learning environment. I like being able to learn things and teach as well. I like the attitude towards work that we have in this group and I also enjoy working with the people here. I also see room to grow here and I like that.

What projects are you working on now?

- Right now our attention is being taken up with development of improved Xerox 9700 services. This is consistent with the industry trend towards providing much better quality output from computing machines of various types and sizes. Recently we were involved in the upgrading to Version 7 of UNIX. We are continually involved in upgrading systems which we offer services for or which we support. There are a number of ongoing user projects which are often on the text analysis side, for example, the Leibnetz project. Some of the things which we develop for them will be useful to other users. In addition we may be making some type of upgrade for support on the IBM machine or DECsystem-10 for text services. We are also working on two USERBOOK sections: Text Products and 9700.

What projects are planned for the future?

- We have an interest in providing better support for bibliography type projects, indexes, concordances etc. We are short on tools in this area and it's important in a university environment. Also of interest is enhancing text analysis. We're working with various faculty members in the university towards improving the products that we offer in that area and providing new tools so that they can do new types of analysis.

  An area we intend to emphasize is support for small machines and word processing on personal computers. This will involve the preparation of text but will also involve moving material around from place to place. This will involve working closely with the UTCS staff in the Small Systems area. The integration of standalone word processors with larger systems is part of this direction. We will offer services for the selection of word processors and word processing software for personal computers as well as helping in the development of text analysis packages for small systems as needed.

  A cross system formatter such as SCRIBE is a direction we would like to be able to move in as soon as possible. With such a formatter available, limited staff resources could be concentrated in support of a single product, while allowing users the same choice of machine environment they enjoy now. SCRIBE currently provides support for a wide range of output devices, taking advantage of the full range of features on each. In addition, SCRIBE developers are interested in providing support to new output devices as they are released. The acquisition of SCRIBE is included in our annual plan for 1983/84. Whether it will be funded is somewhat in the laps of the gods. SCRIBE is obviously competing with many other possibilities for the limited funds that will be available.

Would you like to receive more feedback from users?

- We have a tradition in the department to attempt to solicit information from our

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Text Services continued

users in the form of course evaluations, course followup, meetings, user groups, and users forums. We actively encourage user participation. We realize that lack of participation may be due to time constraints rather than a lack of interest. We try to be user driven to a reasonable extent and if we don't get responses from our users it is more difficult to make decisions.

If users have any comments, suggestions, or ideas the Text Services group would like to hear them. John can be contacted at 978-3995 and Dawne and Lidio can be called at 978-4548.

Kathryn Bourne

Scientific Computing Advisory Service

The Scientific Computing Group (SCG) in the Department of Computer Science at the University of Toronto has established a nonprofit **Scientific Computing Advisory Service** (SCAS) to promote the transfer of scientific computing technology to researchers associated with the University of Toronto. The areas of expertise of the group members include numerical methods for linear algebra, nonlinear equations, optimization, integration, and differential equations as well as systems for extended-precision floating-point arithmetic, computer algebra, and computer graphics.

An integral part of the SCAS is **NIT,** an online interactive query system for advice on mathematical software. NIT was originally developed by Dr. P.W. Gaffney at the Oak Ridge National Laboratory and was installed on the UTCS DEC-10 by the members of the SCG. For information on its use, type **HELP NIT** on the DEC 1090 or contact a UTCS advisor at 978-HELP.

NIT should be used as an initial source of advice on mathematical software. However, if NIT does not prove sufficient, either contact the SCG member whose research interests listed in NIT most nearly match your problem, or call the SCAS Coordinator, Professor Ken Jackson, at 978-7075 to arrange an appointment with an appropriate SCG member. Questions concerning the UTCS computer systems that are not directly related to mathematical software should be addressed to a UTCS advisor at 978-HELP.

Short consultations between SCG members and University of Toronto researchers will normally be provided free of charge. However, to support the service, the SCAS reserves the right to charge a fee for extensive consultations and also for consultations associated with projects from which the consultee will earn a profit.

Dr. Ken Jackson

WYLBUR: An Alternative to Keypunches

Recalling the recent incident when students smashed a defunct keypunch, their message is quite clear — programming with punched cards is not the way to interact with a computer in the 1980's. In fact, it is somewhat embarassing when students, who have programmed with microcomputers all through high school, run up against keypunches for the first time at U of T! The only thing it takes to change this situation is the decision to do it and, mainly, the money to do it.

In recent years dramatic changes have taken place in computing at U of T. At an ever increasing rate, more interactive terminals are being introduced and more classes are moving onto services like BICS (Basic Instructional Computing Service). More

continued...

WYLBUR continued

researchers are getting terminals in their own offices and in some cases even in their own homes. Users are taking advantage of packet-switching networks (like DATAPAC and TELENET) to access UTCS systems from almost anywhere in the world.

Still, old habits die hard and I still see research users struggling to the Engineering Annex, their arms laden with cards (or as I am fond of saying "little blocks of wood with holes punched in them"), prepared to do battle with finicky card readers and noisy keypunches. For now, students don't have any choice, but researchers certainly do.

In the last issue I pointed out some of the conveniences of using an interactive service like WYLBUR. For example WYLBUR

- makes it easy to create, edit and save programs
- simplifies interaction with UTCS advising
- increases programmer productivity by reducing and perhaps eliminating trips to the keypunch/reader/printer area.

In the next issue of *COMPUTERNEWS,* I will point out another very good reason for switching over to WYLBUR -- saving $$MONEY$$.

Ihor Prociuk

Getting Started with Datasets

I've always thought that *dataset* wasn't quite the right word for that small section of magnetically encoded material spinning on a disk, wrapped onto a tape spool, or imprinted in some integrated circuit. I generally don't think of an on-line *program* as a *data* set or this particular article as a dataset either. Some systems avoid the issue by calling datasets *files* or *documents.* Still.....

Of course, computers don't care what you call it - dataset, program, letter, manual, thesis, phone list, or whatever. As long as it has a legitimate name, the computer can find it (or tell you if it's not there) when called for. Until someone comes up with a better name, we're stuck with the generic word *dataset.*

I'm open to suggestions....

Keeping Track of Everything

Users converting from programming via punched cards to interactive job submission via, say WYLBUR, are often confused about datasets and how the computer keeps track of them. It doesn't help to tell a novice user that the computer uses (special) datasets to keep track of datasets. Let's backup a little and watch 'Joe Wylbur User' (JW for short) during a typical interactive session.

JW has been doing research on recent design changes in keypunches on the U of T campus. Since there isn't much data to work with, he feels he can key the data into a dataset (there's that word again) himself. After logging onto the system, JW uses the WYLBUR editor to 'collect' the information. In a few minutes all the parameters are in. He has decided to name the dataset KEYPUNCH. Joe's WYLBUR number is U01234. To retain the dataset on the system for future use, JW issues the following WYLBUR command:

```
save keypunch on user01
```

The computer responds by returning the following message:

```
&U01234.KEYPUNCH SAVED AND CATLG'D ON USER01
```

Here is what the computer has done.

1. The dataset *name,* (or DSN in computer jargon), U01234.KEYPUNCH, has been entered into the system ca-

continued...

Datasets continued

talogue. This is a special dataset that contains the *names* of all datasets on all the user disk packs. It also contains the names of datasets stored in other places but that's not important right now. Each entry in the system catalogue is a unique name. The computer will not allow duplicate entries in this catalogue. Some additional information is also kept in the system catalogue - the volume serial number of the user pack which contains the current version of of U01234.KEYPUNCH, (in this case USER01), and the unit type of this storage medium (in this case a 3330-1).

2. The data in the WYLBUR active area has been *copied* to the disk pack which has serial number USER01. (JW could have chosen any user pack from USER01 through USER10.) Each user pack has a special dataset on it called the *Volume Table Of Contents* or VTOC. The name, U01234.KEYPUNCH, has been inserted into the VTOC along with the following information:

    - Data Control Block, or DCB, for the dataset. The DCB describes the structure of the dataset - things like the logical record length (LRECL), the record format (RECFM), the block size (BLKSIZE), and the type of dataset. Like the system catalogue, the VTOC contains only unique names. JW could save his active area again on USER01 (thus creating two physically identical copies of the same dataset) but he would have to give it a different name.
    - The actual physical location of the dataset on the disk. This takes the form of a table which gives the track addresses for the dataset. JW could tell you more about this table but you stem his enthusiasm by telling him you've got to go to lunch soon. Maybe some other time...

JW has one more thing to do if he wants his dataset to remain on the system - he must *register its name.* This simply means that the dataset name is associated with an account number for billing purposes. To accomplish this end he issues the WYLBUR command:

```
do register
```

The computer asks JW for the name of the dataset and then submits a batch job. Assuming that JW specified the correct DSN then the name, U01234.KEYPUNCH, and the Service Access Code (JW's SAC is 1234) is entered into an accounting dataset. JW remembers that this special accounting file contains only the *name* and *SAC* of the dataset, not the actual dataset itself.

JW can now log off the system with confidence, assured that his research data will be available when he gets back to it tomorrow.

In the next issue of *COMPUTERNEWS* we'll learn what happens when JW's faithful research assistant, Sam Feedback (SF for short), rushes in with startling new data - *Durability Studies of Keypunches Under Stress: Recent Findings.* JW's research career is almost ruined by the nightmare of all programmers - the uncatalogued dataset!

Ihor Prociuk

Erindale VAX 11/780 Research Facility

In September 1981 UTCS introduced 'Libra' - a project which was to have moved undergraduate computing from a card to a 'glass keypunch' based system. As part of this project, Erindale College was to receive a VAX 11/750. Realizing that the presence of substantial local computing capacity at Erindale would be a valuable addition to the research facilities of the College, Dean J.J. Fawcett and a group of researchers negotiated with Dr. Doron Cohen, PACCFS, and members of Central Administration to have a more powerful VAX 11/780 installed. The combined teaching research facility has proven to be a flexible and efficient symbiosis of the College's needs.

In addition to serving the usual computing disciplines and 20 researchers, Libra is being utilized by students in the humanities and social sciences. The research applications, using the local execution capability, vary from studies in genetic structuring to the properties of stellar atmospheres. Others use the facility to prepare jobs for submission to St. George based processors. A high speed data channel provides the communication link between campuses, with Erindale being one node in a Decnet network.

Software currently available for local use on the Erindale VAX includes: Assembler, FORTRAN, EDT, SOS, RUNOFF, all the VMS services and utilities, IDL (Interactive Data Language), and through a donation by Dataplotting Corporation the interactive graphics packages D-Pict/VGL and D-PictB.

At present, the cost for research use of the Erindale VAX-11/780 includes:

Administrative Charges		$ 100.00/year
Connect Time		$ 1.00/hour
CPU Time	Batch	$ 20.00/hour
	Interactive	$ 20.00/hour
Unlimited Low Priority	Batch	$1000.00/6mo.
Printing Charges		$ 0.01/page

For further information please feel free to contact Peter Wall, Room 2043, South Building, Erindale College at 828-5311.

Peter Wall

SUGI '83

The 1983 SAS Users' Group International (SUGI) Meeting was held in New Orleans Jan. 16-19. Two UTCS staff members, Diane Mitchell and William Barek, attended this conference. Probably the best attended session was the opening talk, in which several SAS Institute employees reviewed what had happened in 1982, and announced what's coming in '83. Some of the highlights of this session are:

- In addition to the new two part User's Guide, there will be a manual for SAS/ETS 1982, which will be expanded from the present manual.
- Some of the highlights of SAS82 discussed were the new macro facility, the HELP facility, improved NEWS option, performance enhancements, new procedures TABULATE, CALENDAR, APPEND, FORMS, and TREE, and other procedure enhancements.
- A new product called SAS/OR (Operations Research) will be marketed soon. It will have five procedures: LP (linear programming), CPM (critical path method), TRANS (transportation problem), ASSIGN (assignment problem), and NETFLOW (general network flow optimization).

continued...

SUGI ´83 continued

A lot of excitement was evident about the coming of Portable SAS. It is designed for 32 bit virtual systems with a PL/I compiler, and commitments currently have been made to support the Data General MV series, DEC VAXs under VMS, and the PRIME 50 series. Portable SAS is a very faithful implementation of SAS, with some nice additions such as an ATTRIB statement (to allow you to specify all of a variable's attributes in one statement), alternate spellings (COLOUR and CENTRE), commas in formats and more complex DO groups. Deletions include the COMMENT statement and redundant operators such as NG and NL. Most of the changes have to do with arrays. Explicit indexing of arrays will be available. Braces or brackets are used instead of parentheses to eliminate ambiguity with function references. There will be no index variable and no DO OVER statement. One and two dimensional arrays are implemented now; an N-dimensional arrays will be added in the near future. Another change is that all character strings in TITLE, FOOTNOTE and LABEL statements will have to be enclosed in single or double quotes.

SAS/GRAPH

Several new announcements were made for SAS/GRAPH 82.2. One of them is that GOUT will be able to produce device independent plot datasets for GOULD. There will be also 13 new patterns added to SAS/GRAPH for a total of 30. Enhancements are being made to PROC GSLIDE which will enable users to determine where the text is on the plot. New sets of Japanese and Chinese fonts will be available. In addition, users will be allowed to design their own type of font using the PROC FONT. An announcement was also made of new graphic device drivers for micro computers such as the IBM Personal Computer An independent company in the U.S., Darwin Systems, Inc. announced a CP/M based micro that will preprocess programs written for SAS/GRAPH prior to the submission to the IBM mainframe. Details on these changes and others can be found in SAS Technical Report P-121, 'SAS/GRAPH Enhancements & Updates for 82.2.'

SAS and Data Management

Perhaps the most exciting news was the availability of Relational Algebratic Query Language (RAQL) which users can call anywhere from the SAS programs. Therefore the query facility of RAQL combined with SAS's statistical, report writing, and graphic capability results in a very comprehensive data management package. This software was produced at McGill University and is available for about $600.00.

SAS and Education

Although there were many presentations in this area one of the most interesting applications was presented by Darwin Systems, Inc. The product is called CAL/S which is a course authoring language that is generally compatible with GNOSIS. It is a SAS program that writes SAS programs. The programs that it writes are CAI (Computer Assisted Instruction) courses that are directly executable by students. Although a CAI course can always be written in any computer language, a course authoring language allows the author to concentrate on his lesson's contents by taking over much of the drudgery of frame delivery, response assessment, and branching.

SAS/ETS

Some new procedures have been added to SAS/ETS 82. One of them is MORTGAGE which calculates the variables associated with equal payment, fixed-rate installment loans, and produces mortgage tables for specified combinations of variables. Three additional functions now available for SAS/ETS are ARMACOV, ARMALIK and MRATIO. A number of new functions for financial computation will also be available.

continued...

SUGI ´83 continued

A wide variety of papers were presented at the other sessions that were held at the conference. Talks included several strategies for teaching SAS, different systems written in SAS, new statistical applications, interactive techniques and tutorials with interesting hints for both novices and experienced users. Copies of all papers will be published in the SUGI 1983 Proceedings, which should be useful to everyone interested in SAS.

A more detailed debriefing of the SUGI 1983 meeting was held for all SAS users on February 2. The turnout was very encouraging, considering the short notice and miserable weather. Many of the attendees expressed an interest in holding more meetings to discuss SAS and other areas of mutual interest. If you feel that these meetings might be of benefit to you, please watch SASNEWS and HOTNEWS for details of dates and places of future meetings.

Diane Mitchell
William Barek

Fall DECUS ´82

What was probably the most action packed DECUS Symposium in recent years was held December 6-10, 1982, at the Disneyland Hotel in Anaheim, California. Digital's Large Computer Group (LCG) was especially active, making many announcements of interest to users of DEC's 36-bit machines.

The biggest LCG news of all was probably the absence of any announcement about the follow-on processor to the KL10. In spite of this, however, the announcements that were made created a lot of excitement. Most of this interest was generated by DEC's description of the Digital System Interconnect Strategy. DSIA is Digital's new approach to the integration of semi-independent components into an overall system. In broad terms this approach views the system as a set of 'servers' (compute, file, terminal, etc.) in which all of the elements are 'loosely-coupled' to each of the others.

At present these connections are implemented in two ways. For lower speed applications, ETHERNET will be used to interconnect such devices as terminal servers, gateway servers (e.g., to IBM systems and X.25 networks), and DECnet routers with one or more CPUs. On the other hand mass storage equipment requires much faster data transfer. To meet this need DEC announced the Digital Storage Architecture (DSA) which consists of the Computer Interconnect bus (CI20), an intelligent mass storage controller (HSC50), and a variety of new disk and tape drives. As viewed by DEC, the interconnection of these components "constitutes a new computing concept in which the 'NETWORK is the SYSTEM'".

The initial announcements of such loosely-coupled systems were made for DEC-20 systems only. The diagram shown at the end of this article illustrates one possible configuration. Announcements regarding DEC-10 and VAX implementations are expected in the near future.

The key element in DSA appears to be the HSC50 ('HSC' stands for Hierarchical Storage Controller). It is an intelligent disk/tape server which contains most of the functionality previously located in the host CPU's operating system. It also contains many new features related to data integrity, availability, and performance. In addition, the HSC50 can concurrently serve several processors connected via the CI-bus.

This last feature is important because it permits the tight link between a CPU and its file system to be severed. In the 'loosely-coupled' system envisaged (and demonstrated) by DEC, several processors and

continued...

Fall DECUS ´82 continued

HSC50s communicate via the CI20 in such a way that all the disks are available to any of the CPUs. The Common File System software (called CFS-20) which drives this set of interconnected devices was also announced and demonstrated. These products are expected to be available in early 1984.

Of more immediate interest to users of UTCS' DECsystem-10 were the announcements concerning LCG software. The latest maintenance release of TOPS-10 had already been received by some attendees. [By the time you read this 7.01A will probably already be installed on the UTCS DECsystem-1090.]

The 7.01A software package also includes the long-awaited GALAXY version 4.1. This complete rewrite of the GALAXY batch spooling and queueing subsystem will not be immediately implemented at UTCS, because the IBM communications part of GALAXY is a separate product which will not be released until Spring '83.

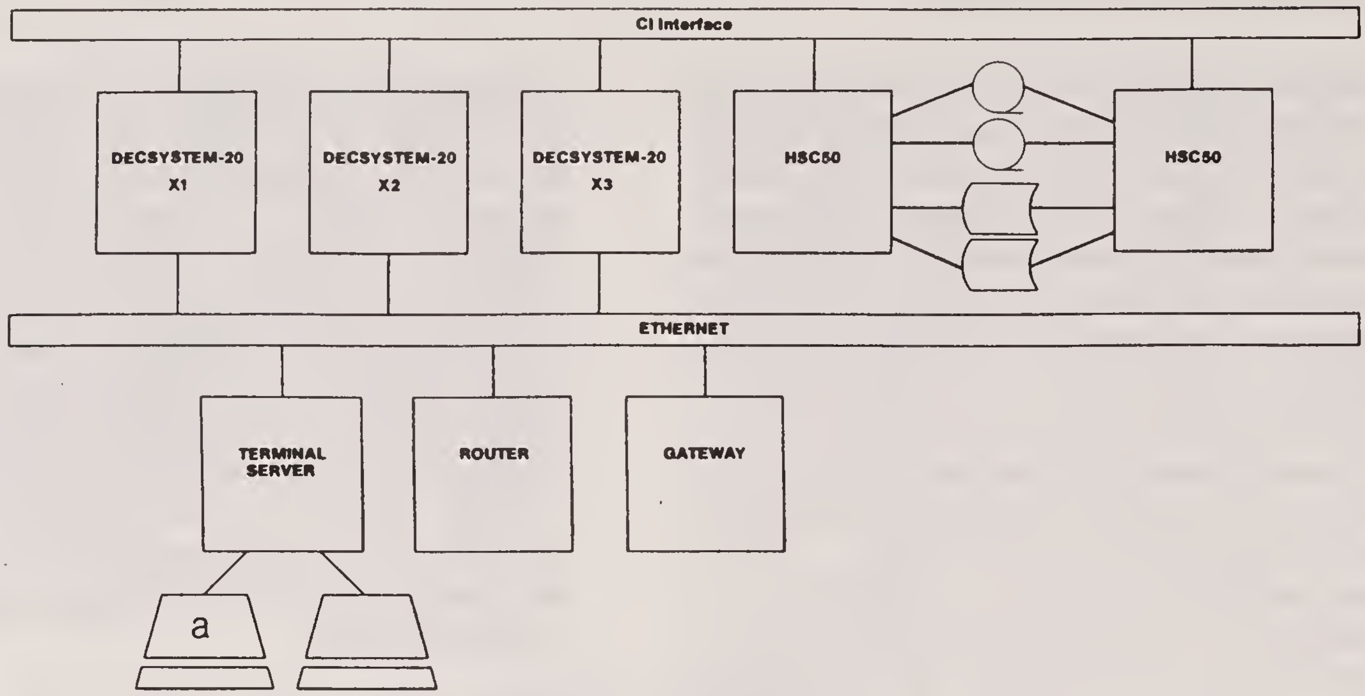
Another product which has been anxiously anticipated by DEC's customers is their implementation of the 1977 FORTRAN standard. FORTRAN-10/20 version 7 supports most of the full language standards and meets all requirements of the Subset Language standard. Supported F77 features include CHARACTER data, zero-trip DO loops, IF-THEN-ELSE contructions, OPEN statement options, intrinsic and generic functions, and many more. Version 7 also supports the extensions to the standard with which DEC-10 users have become familiar. In addition, the compiler provides optional switch-selectable support for programs written to conform to the 1966 standard. FORTRAN-10 version 7 is presently in field test and should be available to DEC-10 users sometime this Summer.

Looking somewhat further into the future version 7.02 of TOPS-10 was demonstrated at Anaheim and is presently being tested in-house. The big news here is that TOPS-10 will fully support DECnet-10 phase III. This means that all of Digital's 16-, 32- and 36-bit computers can be connected into a single network which implements such features as network management, task-to-task interaction, adaptive path routing, file transfer, and virtual terminals. It may be worth noting that Digital's world-wide in-house network consists of over 300 nodes.

Other 7.02 enhancements will include features specifically designed to improve disk I/O performance such as large buffers within user programs, the operating system's use of a software disk cache, and changes to the swapping logic. Also there will be several enhancements to the logical name facility such as the ability to use a full file specification (including wild cards) and for users to define their own commands. Another feature of 7.02 (actually the KL10 microcode) is support for FORTRAN version 7's new, optional floating point format ('G-floating') which extends the range of a floating point exponent from 38 to 308. 7.02 is expected to go into field test in early 1983 and to reach the field near the end of the year.

As usual, this DECUS Symposium was valuable for both official announcements and private discussions; the kind of in-depth information interchange which simply cannot be obtained in any other way. For future reference 1983 DECUS Symposia will be held in St. Louis (May 23-27), Ottawa (June 21-24), and Las Vegas (October 24-28).

continued...



Dr. Edmund West

Maintenance of Terminals

For the past year, UTCS has contracted terminal maintenance with two external companies; MISCOE DATA and LANPAR. It is planned to continue this arrangement for the next fiscal year. Recent negotiations with these companies have resulted in an agreement whereby any U of T department, faculty or college may deal directly with the companies and benefit from the rates negotiated by UTCS. These rates offer savings in excess of 30% from the standard charges of the respective companies.

Both companies maintain a range of terminals and micro computers. This range evolves over time, but typically covers all popular types.

For further details, please contact:

N. Housley	978-4967	UTCS
D. Loose	677-2745	MISCOE
S. Ball	475-9123	LANPAR

Norman Housley

APL Data Security 1:

Protection of Online Data

In APL protection against access by one user of another user's data is almost entirely by default. A user may never view a list of another users workspace names. It is possible to load a workspace from another user's library if the name of the workspace is known. However it is also possible for the owner of a workspace to password protect that workspace. It is not possible for one user to do anything with another user's file, including detect its existence, without being given specific access by the owner of that file.

The four levels of access control available in the APL language and system will be discussed in detail in this article. Further information may be found in the *SHARP APL Reference Manual* by Paul Berry. It is in the users best interest to take advantage of these facilities for access control to prevent expensive, illicit use of an account and to protect the integrity and security of data stored in the workspace and file libraries associated with that account.

The Password or Lock on an Account

The account lock, or password, consists of up to eight alphanumeric characters and must be used every time you sign onto the account. For example, if account 56789 has the password 'SECRET' then the following is a valid signon:

```
)56789:SECRET
```

Account locks provide security against unauthorized use of the account and should not be left visible to others. It is suggested that the account lock be a combination of characters that are non-obvious (e.g. users should avoid using their own initials) but should be easy to remember. It is also recommended that the password be at least five characters in length. To help minimize illicit use of the account, the account lock should be altered occasionally. If necessary, the Accounting Office can change the lock on an account, if the user has forgotten it.

The account lock may be changed at signoff by appending a colon followed by the new lock to the sign-off command. For example, if you wish to change your password to 'GUARD' then you may sign off by typing:

```
)OFF:GUARD
```

The Password or Lock on a Workspace

Workspaces can also have locks attached to their names for added security. The lock may consist of up to 8 alphanumeric characters. It is usually set by appending a colon and the new lock to the end of the workspace name in the)SAVE command. For example, to save a workspace and establish a lock 'MYKEY' for a workspace named 'SAMPLE', the user may type:

```
)SAVE  SAMPLE:MYKEY
```

The same lock must then be used to load the workspace:

```
)LOAD  SAMPLE:MYKEY
```

When you sign off APL using the ')CONTINUE' command the APL system automatically provides the 'CONTINUE' workspace with the same lock as the account itself. The owner of the account need not specify the lock to reload the CONTINUE workspace, but the lock is needed to load it from any other account.

File Access Matrices

Each APL file has an access matrix associated with it which defines the kind of access allowed to that file. The access matrix is a three column matrix. For each row the first number is an account which is to be given some kind of access to the file. The second indicates the kind of access that account will be given. This number is called the

continued...

Data Security continued

permission code and is the result of adding a series of numbers, each of which represents a file function which that account may apply to the file. For example, if you wish to grant account number 13579 permission to read from and append to a certain file, but do nothing else, the following line should be included in the access matrix:

```
13579 9 0
```

The permission code for the ⎕READ function is 1 and for the ⎕APPEND function is 8, so the required permission code is 9. The last number in each row is a passnumber. If the passnumber is not zero, then that number must be given each time the file is accessed. Unless it is specifically mentioned in the access matrix, the account which owns the file will have complete access to that file.

Before you begin to work with files, you should read the section in Berry's book describing the SHARP APL file system, and in particular make sure that you understand the use of access matrices before you start to build your files.

Locked Functions and Sealed Workspaces

When closing the definition of the function, an individual function can be 'locked' by overstriking the APL function editing symbol Del with the symbol Tilde. In addition, the system function ⎕FD may be used to lock a list of functions. Functions which are locked in this manner cannot be displayed or edited and cannot subsequently be unlocked. If a user requests a selective dump of a workspace (which contains locked functions) to a tape, the locked functions will not be included in the dumped workspace. For these reasons it is crucial, when you lock a function, to keep an unlocked version of that function for maintenance purposes.

The command)SEAL locks all functions in an active workspace. The command prevents functions from being modified or separated. In addition, a sealed workspace may not be merged with another workspace. A sealed workspace may not be selectively dumped to tape, and a)SEAL is not reversible. For these reasons it is crucial that a maintenance copy of the workspace should be kept which is not sealed.

Locked functions and sealed workspaces are, however included in the regular system backups. For more information about selective dumps and retrieves, and about system backups, please see the following article.

Other Facilities Available

The systems command)BLOT overstrikes a 35-character area. This command may be used at any time after signon to obscure, for example, typed information containing locks. The)BLOT command may optionally have an argument stating the length of the blot. A value of up to 132 may be specified. At signon time an overstruck 15-character area can be generated by sending a ')' to APL prior to typing the signon account number (and lock).

Mary Ann Lawry

APL Data Security 2:
Backups to Magnetic Tapes

The January/February issue of *COMPUTERNEWS* contained an article describing IBM disk backups and retrieves. In this article I will discuss APL backups and retrieves. UTCS periodically backs up the APL system by dumping to magnetic tapes. In addition, users may wish to buy or rent magnetic tapes for the purposes of storing their own workspaces or files. There are several advantages to doing this:

- It is, of course, much cheaper to store old or rarely used workspaces or files on a tape than to store them online.
- The user may wish to back up valuable data to a tape, and store it independently of the system backups as extra security against loss of that data.
- In an application where vast amounts of data are collected over a period of time, the user may wish to periodically dump that data to tape in order to free online space. This, of course, will save on storage costs.
- UTCS backups are kept no more than one year. The user should create his own backup tapes if he wishes to keep them longer than this.

Using Magnetic Tapes For APL Backups or Archives

APL Files or workspaces may be selectively dumped to tape or retrieved from tape by the operator on user request. There are several points which must be remembered when requesting a selective dump or retrieve:

1. There is a charge for any selective dump or retrieve request. This charge is currently $10.00. It is independent of the number of files or workspaces involved. For more information regarding charges see USERBOOK Section 2.7.
2. For any selective dump the default density assumed is 6250 bpi. On special request 1600 bpi will be used, but this will take longer. If 1600 bpi is used, not as much data will fit onto the same tape.
3. Only the owner of a tape may request a selective dump to that tape.
4. Files and workspaces may not be dumped to the same tape. If you wish, for example, to archive all the files and workspaces on an account you must dump the workspaces to one tape and the files to a second tape.
5. You cannot ‘add on’ dumps to a tape. If you request a selective dump to a tape which already has data on it, that data will be overwritten.
6. Sealed workspaces and locked functions will not be selectively dumped to tape. If a workspace containing locked functions is selectively dumped, the locked functions will not be.
7. It is the users responsibility to know what has been dumped to tape. When requesting a retrieve from a tape, it is the users responsiblity to know that the workspace or file does indeed exist on that tape.
8. If a retrieve of a file is requested, where a file of that name already exists on the system, the existing file will not be overwritten. The operator will attempt to call the requestor, or re-name the file being retrieved.
9. If a retrieve of a workspace is requested, where a workspace of that name already exists on the system, the existing workspace **will be overwritten.**

continued...

Data Security continued

APL System Backup Schedule

The entire APL system is backed up to tape in the early hours of the morning from Monday to Friday. The backups occur while APL is down. The daily backups, Tuesday to Friday are kept for one week. The weekly backups, which are done on Monday morning are kept for one month. The monthly backups, which occur once every four weeks on Monday, are kept for one full year. In addition, the APL files are compressed on Monday mornings, after the system is backed up.

Users may request a retrieve from the backup tapes. When requesting such a retrieve from the operator you should give the last date on which the file or workspace was known to exist. Again, there will be a charge for any requested retrieve from the backup tapes.

Mary Ann Lawry

Announcing a New Release of Sharp APL

In the Summer of 1983 we expect to be installing the May 1982 release of Sharp APL. This release brings a number of improvements and extensions to the APL language and system. Some of the more interesting changes will be mentioned here. For more complete information, please examine the Newrelease document accessible using the public library workspace, 1 NEWRELEASE.

The May 1982 release is being installed at UTCS almost exactly one year after we received it. There are two reasons for the delay. The first is that there were resource limitations for testing the new release. The second is that there is a complication in the installation of the release: there will be a reformatting of the workspace directories. For these reasons it was decided not to install it until this Summer, when the load on the system will be lighter.

Changes to the Way In Which Errors Are Handled:

- The error message generated when a reference is made to an object which has no value will always be 'VALUE ERROR'. Previously there were circumstances under which the error might have been 'SYNTAX ERROR'.
- There is a new error message, 'RESULT ERROR', which will be reported when an expression which does not return a result is used in a context in which one is expected.
- There is a new ⎕TRAP action code, 'I', which allows the event handler to gain control in the immediate mid-line environment in which the error occurred.

The New System Command)XLOAD:

This new command allows the owner of a workspace to load that workspace without causing the execution of its latent expression, (⎕LX).

Improvements to Primitive and System Functions:

- **A Monadic Form of the Inner Product:** The dot operator has been extended to allow the left argument to be any scalar function or null. Previously, it was necessary for this argument to be a primitive scalar dyadic function, or null. The most important example of this is the determinant function: (-.x M) where M is a square matrix. This development is discussed in depth in the Sharp APL Technical Note, number 23, which may be ordered through the UTCS Information Office.

continued...

APL continued

- **Improved Display for Enclosed Arrays:** It is now possible to display enclosed arrays, and to format them using Monadic Thorn. Monadic Thorn will convert each subarray to a character representation. The character arrays created at each level are catenated to form a rectangular array of rank two or more.

  There is a new System Variable, ⎕PS, which may be used for positioning and spacing of enclosed arrays. For more information see the Newrelease document.

Mary Ann Lawry

Changes to APL Workspace 1 Newrelease

In July 1981 the workspace 1 NEWRELEASE was added to the APL public libraries. The purpose of this workspace is to allow the user to access online documentation about changes which occur in UTCS Sharp APL. Until recently there was only one Newrelease document available through this workspace, *The June 1981 Release of Sharp APL.* With the coming installation of the May 1982 Release of Sharp APL it became necessary to issue a new Newrelease document to describe this release. To make this available we have expanded 1 NEWRELEASE to make it capable of accessing a variety of documents. The visible changes to 1 NEWRELEASE are as follows:

1. When 1 NEWRELEASE is loaded, it automatically opens the most recent Newrelease document. It displays the title of that document on the screen, along with an introduction to it.
2. A new function, RESET, has been added which displays a list of the available Newrelease documents along with installation dates, and asks the user which document he wishes to examine.
3. The function DISPLAY has been improved to make it easier to display long items on a CRT screen. For instructions on the use of this function please examine the variable HOWDISPLAY in the workspace.
4. When the function PRINTFILE is used to create a file for printing, using the function PRINTFILE, the title of the Newrelease document is used as a page header.
5. The documentation variables in the workspace are reworked and expanded.

There are now three Newrelease documents available using 1 NEWRELEASE:

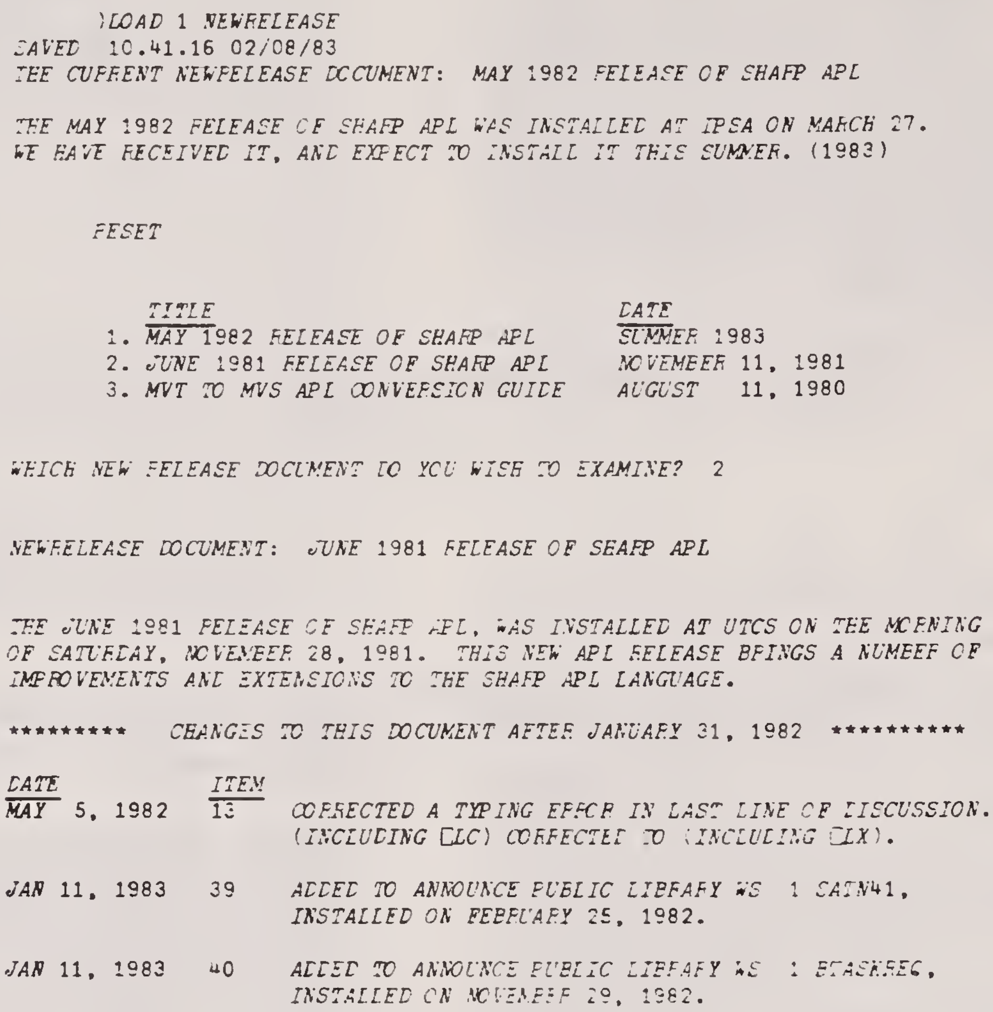
The May 1982 Release of Sharp APL
This document describes the release which we expect to install this Summer. This document will probably be changing periodically as we learn more about this release. The May 1982 release is discussed more thoroughly in another article of this issue of *COMPUTERNEWS.*

The June 1981 Release of Sharp APL
This document describes the release of Sharp APL which is currently running at UTCS. There were three changes made to the document well after the release was installed. These changes are mentioned in the introduction to the document.

The MVT to MVS APL Conversion Guide
This document describes a change which occured in August of 1980. The material in this document was originally available through the public library workspace: 1 CONVERTDOC.

The following example illustrates an APL session where the user loads 1 NEWRELEASE and uses the function RESET to select the Newrelease document describing the June 1981 Release. Note that the list of available documents is in reverse chronological order.

continued ...



```
      )LOAD 1 NEWRELEASE
SAVED  10.41.16 02/08/83
THE CURRENT NEWRELEASE DOCUMENT:  MAY 1982 RELEASE OF SHARP APL

THE MAY 1982 RELEASE OF SHARP APL WAS INSTALLED AT IPSA ON MARCH 27.
WE HAVE RECEIVED IT, AND EXPECT TO INSTALL IT THIS SUMMER. (1983)


     RESET


       TITLE                               DATE
    1. MAY 1982 RELEASE OF SHARP APL       SUMMER 1983
    2. JUNE 1981 RELEASE OF SHARP APL      NOVEMBER 11, 1981
    3. MVT TO MVS APL CONVERSION GUIDE     AUGUST   11, 1980

WHICH NEW RELEASE DOCUMENT DO YOU WISH TO EXAMINE?  2


NEWRELEASE DOCUMENT:  JUNE 1981 RELEASE OF SHARP APL


THE JUNE 1981 RELEASE OF SHARP APL, WAS INSTALLED AT UTCS ON THE MORNING
OF SATURDAY, NOVEMBER 28, 1981.  THIS NEW APL RELEASE BRINGS A NUMBER OF
IMPROVEMENTS AND EXTENSIONS TO THE SHARP APL LANGUAGE.

*********   CHANGES TO THIS DOCUMENT AFTER JANUARY 31, 1982   **********

DATE         ITEM
MAY  5, 1982  13    CORRECTED A TYPING ERROR IN LAST LINE OF DISCUSSION.
                    (INCLUDING ⎕LC) CORRECTED TO (INCLUDING ⎕LX).

JAN 11, 1983  39    ADDED TO ANNOUNCE PUBLIC LIBRARY WS  1 CATN41,
                    INSTALLED ON FEBRUARY 25, 1982.

JAN 11, 1983  40    ADDED TO ANNOUNCE PUBLIC LIBRARY WS  1 BTASKREC,
                    INSTALLED ON NOVEMBER 29, 1982.
```

Mary Ann Lawry

Seventh Edition UNIX

On February 7, 1983, the version of UNIX (a trademark of Bell Laboratories) on the Statistical Advising Service and Document Preparation Service PDP-11/70 at UTCS was converted from Programmer's Workbench UNIX (PWB/UNIX) to Seventh Edition UNIX (known commonly as version 7).

Version 7 fixes many bugs and minor annoyances in PWB/UNIX and adds new commands. Version 7 also permits establishing more than 256 individual user accounts. This will permit wider access to UNIX on the PDP-11/70.

Version 7 is the base system which has been transported to many machines other than the PDP-11, including the VAX-11, IBM 370 series, IBM Series/1, Motorola 68000, Zilog Z8000, National Semiconductor 16032, various Perkin-Elmer machines, UNIVAC 1100, and BBN C machine.

The major changes are:

- addition of the **environment**, in which parameters such as prompts, command search rules, terminal types, and file names reside

continued...

UNIX continued

- an improved **shell** or command language interpreter, which makes shell programming easier and interactive use more convenient
- more reliable file system and repair program such that less damage occurs during a crash and is more easily fixed
- better instrumentation of the running system to ease performance tuning.

Details of changes between PWB/UNIX and version 7 may be found in /usr/pub/v7/*.

Geoff Collyer

ATMS Phase Out

All users of ATMS services should by now have received a communication seeking their advice with respect to their own particular needs following the phase out of ATMS. It is therefore probably not necessary to report in detail here, all the options and details surrounding the phasing out of the ATMS service.

In summary, ATMS will at the direction of the UTCS Board of Review, be phased out in the early Summer of 1983. Users of this service will be provided with some assistance in moving their work to alternative, and hopefully, an equally suitable facility. UTCS will be providing assistance and guidance for users wishing to remain customers of the central service on one of the existing mainframe services, such as UNIX 11/70, SOS on the DEC-10 or WYLBUR on the IBM system. Some question with respect to the formatters still exist in that UTCS is endeavouring to obtain SCRIBE, but the final decision will be made as a result of the budget process. For many users, these choices are probably far from ideal. Therefore we will be encouraging users where appropriate, to go to their own standalone machines.

If anybody has any concerns they would like resolved, please contact me as soon as possible.

Frank Spitzer

Changes in the 9700 Printing Service

Readers of *COMPUTERNEWS* should be aware that changes have been made to UTCS's 9700 Printing Service (see *COMPUTERNEWS* #203). On February 14, 1983 these changes became effective. Users of the 9700 service must make minor changes in the procedures used to generate output.

All users now need to route 9700 output to destination 'X9700' with special forms '9700' to use the 9700 printer. A further change will be noticed by DEC-10 users. As of February 14, 1983, users from the DEC-10 were required to provide an IBM GPJS SAC and Password each time they used the 9700 service. This is because all since we spend real money to provide this service.

billing for 9700 output will be directed towards IBM accounts only.

Details of changes required will be outlined in a new 9700 USERBOOK Section. The most important changes have been announced in HOTNEWS, and broadcast messages on the various services. In addition, all DEC-10 users of the 9700 will need to contact Accounting Services and arrange for an IBM GPJS SAC.

9700 users should realize that as of the next fiscal year we will charge real (i.e., non entitlement, non elastic) money for 9700 service. Printing on the 9700 represents a true incremental cost to UTCS

John Bradley

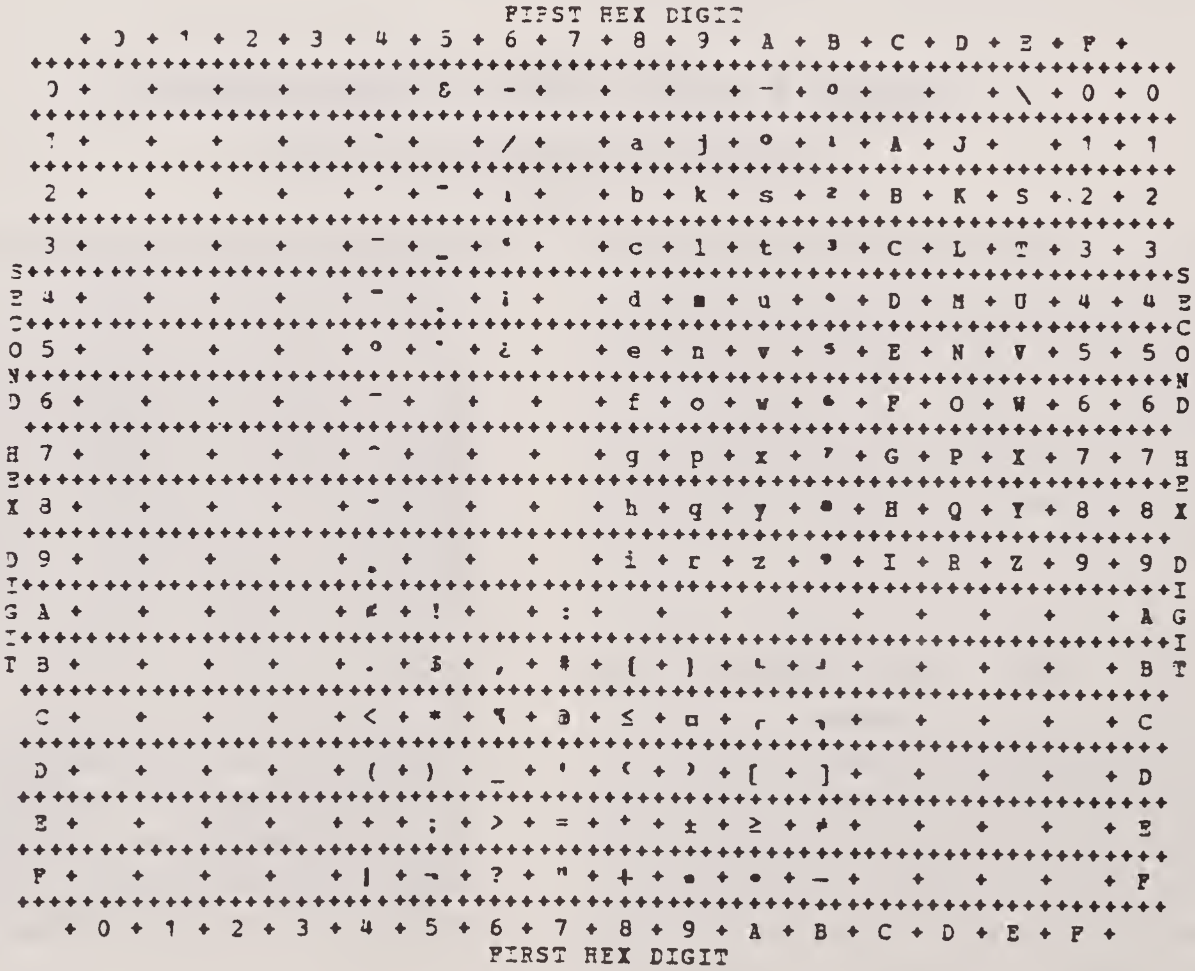
Backslash Now Available on IBM Print Train

In recent years there has been an increased demand for the potential to print the full ASCII character set on an IBM printer. A character set is implemented by a print train, that is, the mechanism in the printer which holds the slugs where the characters sit. Since IBM uses the EBCDIC character set, a particular IBM print train is unlikely to contain all of the ASCII characters. For instance, the GN train which is used on several of our IBM printers lacks 4 ASCII characters in addition to the lower case alphabet. An examination of our print trains showed that one print train had been modified for other purposes many years ago and, as a result, would need only one character to give it the complete ASCII set: the backslash (\).

Unfortunately, IBM did not have an 'off the shelf' print slug containing the backslash in the type style used in this print train. This necessitated placing a special order with IBM to have the slug designed, production setup arranged for, and finally the slug produced. The processing of this order took several months and involved IBM facilities in Sweden. The slug was received and installed at UTCS in December 1982.

The final configuration of characters along with their corresponding hexadecimal codes is shown below. The backslash is located in position E0. Jobs routed to destination CENTRAL on the 3033N12 system with a 4 digit forms code that begins with 1 or 2 will be printed with this TN modified print train.

Bob Chambers



FIRST HEX DIGIT

SECOND HEX DIGIT	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0						&	-				−	°			\	0	0
1					ˋ		/		a	j	°	ı	A	J		1	1
2					ˊ	¯	ı		b	k	s	²	B	K	S	2	2
3					¯	_	‘		c	l	t	³	C	L	T	3	3
4					¯	.	¡		d	m	u	•	D	M	U	4	4
5					°	ˋ	¿		e	n	v	⁵	E	N	V	5	5
6					¯				f	o	w	⁶	F	O	W	6	6
7					˜				g	p	x	⁷	G	P	X	7	7
8					¯				h	q	y	●	H	Q	Y	8	8
9					.				i	r	z	⁹	I	R	Z	9	9
A					¢	!		:									A
B					.	$	,	#	{	}	└	┘					B
C					<	*	%	@	≤	□	┌	┐					C
D					(	)	_	'	(	)	[	]					D
E					+	;	>	=	+	±	≥	≠					E
F					|	¬	?	"	+	•	•	—					F

FIRST HEX DIGIT

University of Toronto Computing Services

User Survey

Please complete this survey and return it to the UTCS Information Office (address on the reverse side). The purpose of this survey is to provide the Director with additional feedback on user perceptions of UTCS. Feel free to make copies of the form for other users who do not presently receive *COMPUTERNEWS.*

1. How many years have you been using UTCS facilities? ________years.

2. Please indicate your approximate **annual** computer usage.

   ☐ Less than $500.
   ☐ $500-$1,000
   ☐ $1,000-$2,000
   ☐ $2,000-$5,000
   ☐ More than $5,000

3. Which categories best describe your computer usage? (Check those representing significant usage.)
   ☐ Administrative ☐ Instructional ☐ Research

4. Check those services which you use often.
   ☐ High Speed Job Stream (HSJS)
   ☐ General Purpose Job Stream (GPJS)
   ☐ APL
   ☐ UNIX
   ☐ Central Advising
   ☐ Small Systems Services
   ☐ Short Courses
   ☐ Terminal Rental
   ☐ DEC-1090
   ☐ IMS
   ☐ TSO
   ☐ WYLBUR
   ☐ Application Consulting
   ☐ Micro Processor Lab
   ☐ Installation & Maintenance
   ☐ Other ____________

5. In general, how satisfied are you with the services offered by UTCS? Why?

6. If you were a UTCS user 2 years ago, how would you rate UTCS' overall performance now compared to then?
   ☐ Better ☐ Same ☐ Worse

   If the performance has changed, how has it changed?

7. What **single** factor do you **like** most about UTCS services and facilities? Why?

8. What **single** factor do you **dislike** the most about UTCS services and facilities? Why?

9. Do you receive the UTCS *COMPUTERNEWS?* ☐ YES ☐ NO

10. Any additional comments. (Please be candid.)

fold here

Return to:

Information Office
University of Toronto Computing Services
11 King's College Road
Room 206
Toronto, Ontario, Canada
M5S 1A1

Access to UTCS Facilities through PACX

UTCS has recently completed new documentation entitled *Characterization of Asynchronous Access to UTCS Services.* It explains how to access various facilities through PACX. Its aim is to provide information to users that is relevant to terminal set-ups, e.g. parity, information on how to connect through PACX to a particular service, as well as other useful details.

The areas covered include the following:

1. How to connect to PACX.

   A detailed procedure shows how to connect to PACX using various types of terminals and modems. A chart is also included to assist in error recovery.

2. Baud rates and parity supported by various services and PACX classes.

   For each PACX class the supported (or recommended) parity is outlined. For classes that support more than one baud rate we explain how the different baud rates are detected.

3. Flow control.

   This section indicates ways which a user can control the flow of data from the computer to their terminal. For example, support of XON/XOFF is discussed.

4. Character sets.

   This section describes support for IBM services such as how ASCII get transformed to EBCDIC and what characters cannot be transformed. Information is covered for APL on the different types of terminals and supported characters sets.

5. Terminal Characteristics

   All UTCS mainframe services have system software to support certain types of terminals. Also, there are usually system commands that allow the user to set the terminal's characteristics so that it is compatible to their terminals or for some special purpose. Examples of some of the more useful of these commands are given.

6. Information of interest to micro and minicomputer users.

   This section covers information useful to the user who has a micro and wants to emulate a terminal on a mainframe. Also included is information regarding file transfers between micros and mainframes.

Copies of *Characterization of Asynchronous Access to UTCS Services* can be obtained from the Information Office.

Philip Murton

Hours of Service

The following hours of service will be in effect for Good Friday and Easter Sunday.

	April 1 (Friday)	**April 2 (Saturday)**	**April 3 (Sunday)**
3033N12 GPJS(Classes B,C,E), TSO, Calcomp	closed	10:00-18:00	10:00-18:00
3033N12 GPJS(Class A), HSJS, WYLBUR, APL, ATMS	unattended	10:00-18:00*	10:00-18:00*
DEC1090, 11/70	unattended	10:00-18:00*	unattended
BICS	unattended	unattended	unattended
LIBRA	unattended	unattended	unattended

* Running unattended outside these hours.

Normal hours of service for all systems will resume on Monday, April 4, 1983.

Bob Chambers

Telephone Answering Machine at Central Site

A telephone answering machine has been installed in the UTCS machine room on a trial basis to assist operations staff in resolving problems which develop during periods of unattended operation. In addition to broadcasting a message, this device permits users to leave messages. Messages received are reviewed during the next attended period and appropriate action taken. While we will attempt to respond to problems brought to our attention in this manner, we cannot individually contact users concerning their messages. Also note that the nature of this service precludes being able to reply to advising questions and job status queries, and items of a similar nature.

This machine is connected to telephone numbers 978-7393 and 978-4318 and is operational on Saturdays and Sundays from 00:00 to 10:00 and from 18:00 to 24:00 and on holidays when unattended operation is in effect.

Bob Chambers

UTCS Short Courses (Non-Credit)

UTCS offers a number of short, non-credit courses on the use of various products and services that we support. These courses last anywhere from two to fifteen hours and, depending on the course, may be for one full day or spread over a five day period.

The courses are available to students, faculty, and staff of the University of Toronto, as well as to external users of our services. Those interested in taking these courses must register in advance. A $10.00 registration fee, payable in cash or non-computing appropriation, must be paid a week before

continued...

Short Courses continued

the course is scheduled to begin. Registrants are also required to hold a valid Service Access Code (SAC) for use during the course. Registration and fees are handled by:

Education Facility Co-ordinator
Room 217, McLennan Physics
978-4565

An evaluation of the costs of these courses is presently underway and prices will definitely increase in the next fiscal year to accurately reflect costs.

Please note that some courses are not scheduled, as yet. Waiting lists have been started for same. Depending on the demand, these and other courses will be available again later in the year. (Anyone interested in credit courses should contact the Department of Computer Science at 978-6360.) Courses are normally held in the UTCS Education Facility, Room 221, McLennan Physics.

DDS101 - Introduction to IBM Disk Datasets

This course is intended for people who are switching from cards to interactive computing or for people who would like to use disk files on the IBM system. This course is a prerequisite course for anyone who is planning to take the WYLBUR short course. Course enrollment limited to sixteen.

DDS101 will present the basic concepts required to work with disk datasets on an IBM system. The course includes an overview of steps required to create and maintain datasets. Some examples of the application of data sets in WYLBUR, SAS, and SPSS will be given.

Date: TBA
Time: TBA
Instructor: William Barek

DB101 - Introduction to Data Base Concepts

This introductory course is designed for those with no background in data base concepts or data base management systems, as well as for those who are familiar with these concepts but would be interested in a fresh view. Examples from SEQUEL and QUERY BY EXAMPLE from the relational model will be used. Course enrollment limited to sixteen.

Major Topics of Discussion: Definition and use of a data base and data base management systems; overview of hierarchical, network, and relational models; relational model and terminology; data dictionary; security and integrity of data; and data base design.

Date: TBA
Time: TBA
Instructor: Paul Roth

DEC101 - DECsystem-10 Novice Users

This is an introductory course designed to provide novice users with all the basic information required to start using the DEC-10. Course enrollment limited to sixteen.

Major Topics of Discussion: Terminal input/output capabilities (provided by the system), login/logout, disaster handling, file management and handling, how to get hardcopy, how to reclaim lost files, and how to get help on the system. There will not be any detailed discussion of text editors or formatters.

Date: March 8, 1983
Time: 9:00 am - 3:00 pm
Instructor: Corot Reason

DEC201- DECsystem-10 Assembler

This course will consist of five lectures aimed at discussing MACRO-10, the assembler language used on the DEC-10. This course is intended for experienced DEC-10 users only. (See DEC101) Course enrollment limited to sixteen.

Major Topics of Discussion: Hardware con-

continued...

Short Courses continued

siderations, DEC-10 instruction set, assembler formatting and pseudo-operations, monitor calls, and debugging techniques.

Date: March 14 - 18, 1983
Time: 10:00 am - Noon
Instructor: Dr. Edmund West

DEC301 - DECsystem-10 Advanced Users

This course will discuss the DECsystem-10 in some detail. The object of the course is to provide information that would be useful to most users over the long term. Emphasis will be on details not likely to be of interest to those users who are mainly concerned with text processing rather than programming. This course is only for users who have some experience with the DEC-10 and is not intended for novice users. (See DEC101.) Course enrollment limited to sixteen.

Major topics of discussion: System structure and components, little known features, Monitor Interpreted Commands (MIC), file system details (including the file daemon), tape use and file backup/restore, a basic introduction to TECO, the mail system, and the IBM RJE. Also included will be a thorough examination of all monitor commands and tools for programmers.

Date: March 10, 1983
Time: 9:00 am - 3:00 pm
Instructor: Corot Reason

JCL101 - JCL for Beginners

This course is intended as an introduction to IBM JCL (Job Control Language). Users taking this course will be expected to have some knowledge of a programming language or experience with a computing application. Examples and assignments will assume job submission via the card reader. Course enrollment limited to sixteen.

Major Topics of Discussion: use of JOB, EXEC, and DD statements.

Date: March 14 - 18
Time: 2:00 - 3:00 pm
Instructor: Rob Janes

SAS101 - Introduction to SAS

This is an introductory course that places a heavy emphasis on concepts and the basic approach to statistical computing. Some elementary JCL will be covered and enough SAS will be taught to create a file from ‘simple’ raw data for preliminary analysis. Some reference will be made to some of the features in SAS. Course enrollment limited to sixteen.

Major Topics of Discussion: Definition of terms (i.e., variables, observations, and missing values), creation of files from raw data, data cleaning, and descriptive statistics.

Date: March 28 - 31, 1983
Time: 2:00 - 4:00 p.m. (Mon.)
2:00 - 3:00 pm (Tues.-Thurs.)
Instructor: Diane Mitchell

SAS201 - Intermediate SAS

This course is a continuation of SAS101. Those wishing to take the course should have completed SAS101 or be familiar with SPSS, BMDP, SAS, or a programming language such as PL/I or FORTRAN. This course will discuss in greater detail the features of SAS that are only touched on in SAS101. Course enrollment limited to sixteen.

Major Topics of Discussion: Input from ‘not so simple’ data, report writing using SAS, dataset manipulation (splitting, updating, and merging), and more complicated procedures.

Date: TBA
Time: TBA
Instructor: Diane Mitchell

SAS/GRAPH101 - Introduction to SAS/GRAPH

This course is designed to teach users the

continued...

Short Courses continued

basics of SAS/GRAPH and how to use the various graphics devices which are available at the U of T. It is intended for those who have prior knowledge of SAS. (See SAS101.) Course enrollment limited to sixteen.

Major Topics of Discussion: Special statements required and their options, a description of some of the SAS/GRAPH PROCS which are available, and hardware devices and their options.

Date: March 11, 1983
Time: 9:30 am - 12:30 pm
Instructor: Diane Mitchell

TXT103 - Text Processing on UNIX for Beginners

This introductory course is designed to teach users the basic editing and formatting capabilities of the UNIX system. It is a 'hands-on' course and assumes no familiarity with either computers or text processing. The UNIX system, which can be accessed on ASCII terminals such as VUCOM II, Diablo, VT52, VT100 and Volker-Craig, favours terminals which allow lower case characters.

As this is a 'hands-on' course, registrants must arrange to set up a UNIX account prior to beginning the course, by contacting the UTCS Accounting Office at 978-8703. Course enrollment is limited to ten.

Major Topics of Discussion: Use of the editor (ed) commands, formatting using "ms", manipulation of files and directories, and an introduction to some of the more relevant UNIX programs.

Date: March 21 - 25, 1983
Time: 9:00 am - 12:30 pm
Instructor: Dawne Smith

TXT203 - Introduction to TBL

This brief course introduces users to the UNIX program TBL which interprets formatting commands and options into a variety of table layout designs and provides output on phototypesetting devices. This course is intended for users who are familiar with UNIX text processing. (See TXT103.)

As phototypesetting is paid for in unsubsidized funds (i.e., real money), it is necessary to arrange for typesetting to be made available on your UNIX account prior to beginning the course by contacting the UTCS Accounting Office at 978-8703. Course enrollment is limited to six.

Major Topics of Discussion: Column layouts, options, formatting commands and use of the Varian and CAT/8 phototypesetting output devices.

Date: TBA
Time: TBA
Instructor: Dawne Smith

WYL101 - Introduction to WYLBUR

This introductory course will present an overview of WYLBUR concepts. Students, through hands-on practice, will be taught data collection, batch job submission, and output retrieval. Knowledge of at least one batch processor (FORTRAN, PL/I, etc.) is required. This course is intended for those users who have previously attended the DDS101 Course. Course enrollment is limited to ten.

Registrants must arrange to set up a WYLBUR account prior to the beginning of the course by contacting the UTCS Accounting Office at 978-8703.

Major Topics of Discussion: Data collection and manipulation, file handling, text editing, the 'DO' EXEC, and how to get help.

Date: April 11 - 13, 1983
Time: 10:00 am - Noon
Instructor: Steve Younker

Irene Rosiecki

UTCS Publications

There are many computers in service at UTCS. Some are available for general use and others are dedicated to doing specific tasks such as real-time research or administrative data processing.

USERBOOK is designed to inform you where the computers can be accessed on campus and of their general use. USERBOOK contains sections designed to give you sufficient information to carry out your computing tasks -- either directly or by referring you to commercially available publications. It includes information on computer hardware (how big it is, how to get data in and out), what software (i.e., computer programs) is already written and available to assist you, and the documentation to give you this information. As mentioned above, this involves many different systems, each of which may change as improvements are made.

As we have informed our readers in the last issue of *COMPUTERNEWS,* one of the sections of USERBOOK currently under review is Section 1 — General Overview. This section describes the organization, numbering system, and where and how to obtain copies of USERBOOK. It also explains the facilities and services available at UTCS in general terms. After reading Section 1, the user should be able to select the portion of USERBOOK relevant to their needs.

Section 2 outlines the structure of the UTCS accounting system. It also describes how to obtain an account with UTCS and includes a detailed Rate Schedule for UTCS facilities and services. This section of USERBOOK would be of interest to faculty, staff, and researchers.

Sections 1 and 2 should be available in the Information Office during the month of April. All present Customer Account Number (CAN) holders will receive copies in the mail when they become available. This will be the only automatic mailing available for USERBOOK sections. All other sections must be purchased or ordered at the Information Office.

As mentioned in this issue of *COMPUTERNEWS* (see article entitled 'ATMS Phase Out'), the Computing Review Board has recommended that UTCS phase out ATMS (an IBM based text editor) in the very near future. In order to help current ATMS users in choosing an alternative (mainframe oriented) system, a new section of USERBOOK has been written entitled *Text Products.* This section is machine independent and covers text products which are now available at UTCS. This section will be expanded as other text products become available. Users interested in central text processing facilities may purchase the *Text Product* USERBOOK at the Information Office, Engineering Annex, Room 206.

Other sections revised and published since January 1, 1983, include:

3.5MARK IV

This optional level 2 module provides a general description of MARK IV, as well as Catalogued Procedures for MARK IV Release 9.0 which are available on the Academic IBM system for General Purpose Job Stream. MARK IV is a generalized file management system which is easy to use and understand for anyone who is not familiar with programming languages. Its high level procedural language is particularly suited to administrative applications.

Prerequisite: base module for Section 3.

MARK IV can be purchased for $0.50 at the Information Office.

WYLBUR User Guide

This manual should be used in conjunction with the UTCS WYLBUR Reference Manu-

continued...

Publications continued

al which provides a detailed description of each WYLBUR command.

The WYLBUR User Guide will be available at the Information Office in the latter part of March.

Vera Cabanus

VS FORTRAN AT UTCS

Interest has been expressed in the IBM VS FORTRAN source language processor. For those not familiar with the package, it is a major upgrade to FORTRAN capabilities for the application programmer. Because of its greatly expanded capabilities, this FORTRAN may be considered as a new source language processor in its own right rather than just another familiar FORTRAN compiler. In addition to accepting 'old' FORTRAN programs, (those coded for the familiar FORTRAN G1 and FORTRAN H extended compilers which conform to the 1966 American Standard) the VS FORTRAN compiler also incorporates new features inherent in a newer FORTRAN standard, the 1978 American National Standard (ANSI) one. It also contains various IBM enhancements and is the only FORTRAN compiler now being given major support by IBM.

Currently, under MVS, UTCS is running level 1.1.1 of this processor. Level 1.2.0, a major upgrade, is on order and expected shortly. This coming release has many new features. (These two versions are called 'Release 1' and 'Release 2', respectively.)

There are a series of 'Advanced Application Programming Aids' which can be very useful. They include Input/Output improvements and also the ability to read 'internal files,' that is, to transfer data from one storage area to another and to change the format of the data. There are also 'top down' and 'structured programming' aids as well as an INCLUDE statement to allow the user to include prewritten sequences of code in line. In addition, there are character and bit handling functions as well as a new alternate mathematical library that provides somewhat greater accuracy in certain cases than the traditional IBM FORTRAN library. The old library does remain.

There are, in addition to the above, other new features to aid the user, including a new formatted error traceback system that makes the debug information available in sentence form.

UTCS currently supports a complete service of catalogued procedures for the FORTRAN G1 and FORTRAN H Extended compilers. Equivalent procedures for VS FORTRAN are described in the next article in this issue. Although VS FORTRAN does support programs coded for the FORTRAN G1 and H Extended Compilers, there are differences the user must be aware of and some caution must be exercised. Users should watch *COMPUTERNEWS* and HOTNEWS for more information or contact the UTCS Advising Office at 978-HELP.

Herb Kugel

VS FORTRAN Procedures

UTCS does not presently encourage use of VS/FORTRAN mainly because the compiler requires about 1000K of memory and hence compiles tend to be expensive. However, the effect of memory on the charging algorithm is currently being studied by management. Nevertheless, Advisors are encountering more users who have to use VS/FORTRAN primarily because it is the only IBM FORTRAN supporting the FORTRAN 77 standard. To assist those users we have installed new JCL procedures similar to the family of procedures used to access FORTRAN G1 and FORTRAN H-Extended.

An example:

```
//STEP   EXEC   FORVGO
//FORV.SYSIN   DD   *
    FORTRAN 77 source
//GO.SYSIN  DD   *
    program data
/*
```

FORTRAN Procedures

G1 or H-Extended	VS	Purpose
FORT	FORV	compile
FORTGO	FORVGO	compile, load, & run
FORTLE	FORVLE	compile & linkedit
FORTLEGO	FORVLEGO	compile, linkedit, & run
FORTGOUL	FORVGOUL	compile, load, run, & route to Gould
FORTPLOT	FORVPLOT	compile, load, run, & route plotter output to CALCOMP

The addition of these procedures should not be taken as a signal that we are encouraging VS/FORTRAN. Most users will continue to be better served by FORTRAN G1 and FORTRAN H-Extended for now.

For further information, phone Central Advising at 978-HELP.

Alex Nishri

The NAg Library - Mark 9

The NAg Library is a comprehensive collection of algorithms for the solution of numerical problems on computers. Mark 9 is a new release of the NAg Library which will be available soon to users. It contains 17 new user-callable routines:

C05NBF: Easy-to-use routine to find a zero of a system of N nonlinear functions in N variables by a modification of the Powell hybrid method. Derivatives of the functions are not required.

C08NCF: Comprehensive version of C05NBF.

C05PBF: Easy-to-use routine to find a zero of a system of N nonlinear functions in N variables by a modification of the Powell hybrid method. The user must provide the Jacobian.

C05PCF: Comprehensive version of C05PBF.

C05ZAF: Checks the user-provided Jacobian prior to its use in C05PBF or C05PCF.

E01RAF: Provides an interpolating rational function for a set of data.

E01RBF: Evaluates rational functions of the form produced by E01RAF.

G13: A new chapter of routines providing facilities for investigating and modelling the statistical structure of a series of observa-

continued...

NAg continued

tions collected at equally spaced points in time. Univariate and multivariate methods are available.

X02AFF: A function returning the value of the largest positive permitted argument for DEXP.

X02AHF: A function returning the value of the largest positive permitted argument for DSIN and DCOS.

Twenty routines have been withdrawn from the NAg FORTRAN library at Mark 9. These routines were marked in the Mark 8 Library Manual, and recommended replacement routines are available. Only one routine - C05NAF (Solves a system of N nonlinear equations in N unknowns F(X)=0, X=(X1,X2,...,XN)T by Powell's (1968) method) - is scheduled for removal at Mark 10. C05NBF or C05NCF is recommended as a replacement.

Documentation for NAg is currently available in two forms - the Library Manual and the Mini Manual. The 6 volume Library Manual contains complete information about each routine, as well as introductions for each chapter and some decision trees to aid in the selection of appropriate routines. The Mini Manual contains just the chapter information, short descriptions of the routines, and general NAg notes. Copies of both these manuals are available for reference in the Information Office. Some online documentation can be found in the dataset APPL.MATH.NAGDOC.

While the new library is being tested, it can be accessed with the following JCL:

```
// EXEC FORTLEGO,IX=APPL,LIBRARY='MATH.NAG9LIB'
```

After it has been put into production, the library will be called MATH.NAGLIB.

If you have any problems with the NAg routines, or wish more information about the library, please call Advising at 978-HELP.

Diane Mitchell

SPSS 9.1 and SPSS-X

SPSS 9.1 is the newest release of the SPSS Batch System. The only changes from Release 9.0 are bug fixes. Many of these fixes are for procedures which are not heavily used, such as BOX-JENKINS and MANOVA. NEW REGRESSION has had a number of minor changes made to it, including rewording of warning messages and error messages, tuning the code to make it less expensive to execute, and including new numerical checks for added dependability. Specifying a range greater than 50 on the independent variable for ONEWAY caused a wealth of problems. Now a check is performed on the syntax, and a warning notice is printed and the analysis terminated if the range is too large. The divide checks caused by requesting percentages on a table with empty columns with PAIRED MULT RESPONSE has also been corrected.

There are also some new errors known to exist in Release 9.1. Some of these problems which users are most likely to run into are:

- CROSSTABS Option 7 produces incorrect page numbering
- If there are multiple records per case and the last case is short a record, there will be no error message, but the last case will be dropped.
- BREAKDOWN, CROSSBREAK option produces incorrect pagination. Also, there is a maximum of 200 non-empty rows and 200 non-empty columns allowed. If these maxima are exceeded, a non-fatal message is printed and processing continues.

continued...

SPSS 9.1 and SPSS-X continued

- DOCUMENT: If two files with documents are merged, the document text from the second file seems to disappear.
- VALUE LABELS: If a variable name is omitted on the VALUE LABELS card, the value labels of the missing variable destroy the value labels of the previously defined variable.

SPSS-X Release 1.0 will be the next release of SPSS, and should be available sometime in the Summer. SPSS-X, or SPSS-Extended, represents a significant evolutionary change to the package. It is fully documented in a new, clear concise manual, and machine-readable documentation will be included with the SPSS-X system. Among the features available with SPSS-X are:

- Data definition commands that allow the user to describe and use input data files from the very simple to the highly complex. Data can be introduced into the system in any form, from tape, disk or punch cards. Additionally, SPSS-X can read and analyze intricate file structures such as nested or hierarchical, as well as numerous record structures, including freefield and variable length.
- Extended file management capabilities including the ability to match and merge multiple files of any size, split files and save fully defined system files.
- Extended data management capabilities including the ability to define and manipulate long string variables, do conditional data transformations using the new DO IF -- END structure, and an expanded list of numeric functions.
- Greater latitude in data display. Incorporating the SPSS Report Writer as a standard feature, SPSS-X can generate and prepare presentation-ready data in a variety of formats, including the easily comprehensible stub and banner type, as well as standard tabular reports.

Any user with questions or problems about Release 9.1, or concerns about SPSS-X, are encouraged to call the Advising Office at 978-HELP.

Diane Mitchell

1981 Census Tapes

Statistics Canada 1981 Census Tapes are available for purchase. The 1981 Census User Summary Tape files are in a format similar to the '71 and '76 tapes. Detailed documentation on the content of these files is available in a bilingual format. The cost of a complete tape file is $150.00 and a $75.00 charge applies to any file which is split on one region or province.

The 1981 Census Tapes include both the Basic Series as in other years and a new Profile Series. The Basic Series provides data in much greater detail than is available from census publications. This series contains tables which pertain to cultural, demographic, dwelling, family, and household characteristics (with corresponding file names). Also presented is a breakdown of each variable included in this series. The Profile Series features extensive socio-economic data at different geographic levels. Both series come in machine readable form which allows for easy access, manipulation, and analysis of census data conforming to user-defined specifications.

The User Summary Tape files are organized geographically. A list of the geographic levels where tables are available, the Series they are contained in, and a brief summary of each level follows.

Enumeration Areas (Basic):
The smallest individual collection unit and the building block of all geostatistical areas.

Census Subdivisions (Basic and Profile):
Refers to the general term applying to

continued...

1981 Census Tapes continued

municipalities, Indian Reserves, Indian Settlements, unorganized territories, and also to specially created census geostatistical areas.

Census Tracts (Basic):
Refers to a permanent small census geostatistical area established in large urban communities having a population of 50,000 or more. Provincial census tracts exist in those areas not included in the Census Tract Programme.

Census Agglomerations (Profile):
Refers to the main labour market area of an urbanized core (or continuously built-up area) having between 10,000 and 99,999 population. Census Agglomerations refer to the municipality or Census Subdivision building blocks of a census agglomeration.

Census Division (Profile):
Refers to the general term applying to counties, regional districts, regional municipalities as well as to specially created census geostatistical areas.

Census Metropolitan Areas (Profile):
Refers to the main labour market area of an urbanized core (or continuously built-up area) having a population of 100,000 or more. Census Metropolitan Area components refer to the minicipality or Census Subdivision building blocks of a census metropolitan area.

Federal Electoral Districts (Profile):
Refers to any territorial unit entitled to return a member to serve in the House of Commons.

Census Tracted Centres (Profile):
Refers to urban centres which have a population of 50,000 or more.

Currently UTCS has 1971 and 1976 census tapes and documentation available. The 1971 census tape set includes the entire Canadian population, whereas the 1976 set is a partial survey. Some information on the 1971 tapes can be found in the Information Office and in USERBOOK Section 3.7 Statistics Products. Form layouts can be seen by contacting Diane Mitchell at 978-5128. The documentation for the 1976 tapes can also be found in the Information Office. In addition, the map of Canada which comes with SAS/GRAPH shows the divisions for the 1976 tapes. These divisions are different from those on the 1971 and 1981 tapes.

The Information Office located in the Engineering Annex, Room 206, stocks information from Statistics Canada for 1976 in its reference library. This information is contained in 18 volumes covering areas such as family, demography, and economics.

If anyone is interested in looking at the content manual on the 1981 tapes, general enquiries can be directed to Diane Mitchell at 978-5128. For those interested in purchasing the 1981 Census tapes, contact either Ihor Prociuk at 978-6875 or Bill Fehlner at 978-6509. A list of those people interested and willing to divide the cost of the tapes will be compiled and when complete, UTCS will act on the behalf of those people by ordering the tapes. UTCS will also provide storage for these tapes free of charge.

Kathryn Bourne

TSO Region Size

Users of TSO may have encountered problems in executing programs in the foreground. In particular, use of some of the graphic facilities, the SAS options or the PL/I checkout compiler are examples of such foreground activities. Standard options exist for the user to specify a region size at the time of logging on by typing:

```
logon   ts01234   size(999)
```

The size specified by the variables indicated as ‘999’ indicate the main memory in kilobytes allocated to your TSO session. There are some considerations here to trade off the efficiency of having a large memory size with the cost benefits of using only a small memory size. Under certain conditions however, programs will cease to function with inadequate storage regions and then an abend will occur. Users of SPF may have recognized this when they try to edit large datasets and get a message that they have abended ‘80A’. UTCS has not provided the function to users whereby their default region size may be specified when establishing an account. Even the unsophisticated user has had to specify unusual region sizes using the logon modifier.

Henceforth, UTCS will be inviting users to specify the region size they wish, when they open a TSO account. Users who have accounts and wish to modify the region allocated to their sessions should contact the Accounting Office at 978-3960. Users who are only editing datasets should find 256K sufficient. For users however, intending to work with interactive graphics, PL/I checkout compiler, or SAS facilities, a minimum of 512K and maybe as much as 1 Megabyte may be required. For particular elementary applications 128K may even be adequate.

The costs for a TSO session are calculated according to a complex algorithm which varies with time and depends on charging for instantaneous memory allocations. Thus, the larger the memory available, the larger the memory for which you will be charged. The incentive is therefore for users to tailor their requirements and costs.

Frank Spitzer

Class A, B, C, and E Region Sizes

Recent acquisitions of new software and the changing nature of various programs on Academic IBM Processors have proved that the 500K size limit previously specified for Classes A and C is no longer acceptable. UTCS has recognized this inconvenience to users and effective immediately, the maximum region size (otherwise referred to and known as memory) for Class A has been raised to 1 megabyte (1024K). The maximum region size for Classes B, C, and E is 5 megabytes. Classes B, C, and E no longer need a /*SETUP card unless more than 1024K of memory is to be used.

The following classes are affected by these changes.

Class ‘A’

- no tape and/or disk mounts
- default time - 1 minute of CPU
- maximum time - 5 minutes of CPU
- default lines of output - 3,000 lines
- maximum lines of output - 15,000 lines
- default punched output - 400 cards
- maximum punched output - 2,000 cards
- default region size - 80K of memory
- maximum region size - 1024K (1 megabyte of memory)

Region Sizes continued

Class 'B'

- setup permitted
    - up to 6 tape drives and/or
    - up to 1 3330 disk drive and/or
    - the paper tape reader
- default region size - 80K of memory
- maximum region size - 5 megabytes of memory

Note that /*SETUP card is required for all mounts on magnetic tape, disk drives, paper tape reader or for jobs which require a region size greater than 1024K. Default limits for Class B are the same as Class A defaults.

Class 'C'

- setup permitted
    - up to 2 tape drives and/or
    - up to 1 3330 disk drive and/or
    - the paper tape reader
- maximum time - 120 minutes
- maximum region size - 5 megabytes of memory

Class 'E'

- setup permitted as per Class C
- maximum time - unlimited CPU
- default region size - 80K of memory
- maximum region size - 5 megabytes of memory
- overnight service only

Please note that a /*SETUP card is needed for jobs requiring a region size greater than 1024K (Classes B, C, and E). The REGION parameter specifies the maximum amount of memory for a variable-length GETMAIN request. The total amount of memory available for the job is the value of the REGION parameter plus a fixed amount of virtual storage assigned by the system. Should the amount of virtual storage requested exceed this total, the job will be terminated.

Users should keep in mind that it is more efficient to specify REGION on the EXEC statement, although it can be specified on JOB statement.

The above mentioned summary of job classes are not intended to give a full definition of the different class services. Further details may be obtained by calling Central Advising at 978-HELP.

We hope that this increase of region sizes will improve the Academic Computing facilities for many users.

Vera Cabanus

Computing News in Brief

Computer Training for the Blind and Visually Impaired

The Baruch College Computer Center for the Visually Impaired in New York City has been running workshops for blind and partially sighted students. The workshops, the first of which was held in 1977, tests the aptitude of students with little or no knowledge of computers for computer programming. It is the only recognized evaluation tool to measure their aptitude for computing.

Well adjusted, motivated high school students are referred by state rehabiliation agencies for these workshop programs. Fortran and the use of braille, large-print, and speech output devices are taught. When the workshop has been completed, evaluations are sent to students and counselors to aid them in their decision for future training. By participating in these workshops students have taken the first step toward enrolling in one of the Centres computer training programs.

There are three training programs available to the blind and visually impaired students.

continued...

Computing News in Brief continued

The first is a 13 week course which prepares trainees for entry level positions as COBOL programmers. Participating corporations and business enterprises in the New York area hire the students prior to their training. These companies will pay for training and consultation and also adapt the environment to suit the visually impaired. The second program is an adult education course which lasts 40 weeks. In this course the visually impaired and sighted students are taught together. At the end of the course a certificate is earned as a entry level programmer. In the third program a bachelor or master's degree in business administration from the Baruch College may be earned. The College hopes to include advanced training of the visually impaired as systems analysts in the future.

At the Baruch College the students have access to specialized equipment such as terminals which provide output in braille. Other equipment available includes braille typewriters and synthesized speech devices such as a 'talking' calculator, a Talking Telephone Directory, and an audio device which tells users what is stored in the computer. In addition, there is a closed-circuit television device for enlarging print. This device has a split-screen attachment that allows the user to enlarge printed material and handwritten notes simultaneously.

It is hoped that in the future the Baruch Centre, in addition to providing consultation services to blind persons, will achieve its goal of becoming a national clearing house for blind individuals interested in computers.

(Material was adapted from *Perspectives in Computing,* October 1982, Vol. 2, No. 3.)

Computers and Animals

Computers have had an effect on humans for many years and now they are being used in the animal kingdom. Computers are used for both research and improvements for a variety of species. Following are a few ways that computer applications work for animals.

Changes in flight behaviour of about 800 species of birds are plotted by using a computerized bird banding program. It can also detect, in some instances, bird migrations that avoid cities and certain areas. This banding data is also considered when applying hunting regulations for yearly bird migrations.

In the dairy industry the computer is used to keep records on milk production. By matching genetically superior cows, milk production today is the same as it was 30 years ago, but only half as many cows are used. Similarly, other computer systems are used to produce bigger and better livestock.

Computers are also used to help get rid of pests which can destroy crops. One example of such a pest is the gypsy moth. These moths can destroy crops and forests overnight. The computer is used to determine the size and demographics of the moth population. Once this is determined a method of control is selected to stop the spread of these pests. In this way, heavily infested areas can be found before the moths lay eggs. These eggs, if hatched, turn into caterpillers which eat their way through trees.

These are only a few ways in which computers have aided Mother Nature in her work.

(Material adapted from *Data Processor,* Vol. 11, No. 3, 1981.)

Very Brief

Evolution is a computer game written by two Vancouver boys. The boys, aged 16 and 18, will receive royalities from Sydney Development Corp. of Vancouver who, in a deal with ComputerLand Ltd., will make Evolution available across North America. Evolution will be the first international computer game to come out of Canada, claims Sydney.

continued...

Computing News in Brief continued

(Material adapted from *ComputingCanada,* January 6, 1983, Vol. 9, No. 1.)

What is Life About

Reflections of someone facing change in the year 2083.

Can you imagine life without computers? Initially it seems absurd to try and guess what a computerless life would be like. But since the United Nations has put an end to life as we know it, that is what we are going to have to do.

We now have an opportunity to break new ground here. The challenges are innumerable and the opportunities for advancement are exciting.

Now that humans will be taking control of their lives, we have a chance to do it properly. Maybe now:

- we can get an accurate weather report,
- we will not have to face long line-ups at the bank or supermarket,
- we won't have to have our automobiles reprogrammed every six months,
- our children will get individual attention in the classroom.

Maybe now we will get an answer to that question that has nagged at mankind for almost a century.

Is there life after Atari?

(Material adapted from the *Bulletin,* University of Alberta, December 20, 1983.)

Kathryn Bourne

Summary of APL Hotnews Items

The following is a list of HOTNEWS items entered between December 22, 1982 and February 22, 1983.

DATE	TITLE
22/12/82	UTCS answering service over the Christmas Holidays.
23/12/82	Punched card output will be charged.
24/12/82	Class A region size temporarily increased.
11/01/83	Changes to the way Datapac is accessed.
13/01/82	APL courses offered by I.P. Sharp Associates.
14/01/83	There will be system shutdown on Sunday.
01/02/93	The CIPS APL SIG is meeting on Monday, February 21, 1983.
08/02/83	A new version of 1 NEWRELEASE has been installed.
08/02/83	A new NEWRELEASE document, describing the May 1982 release.
16/02/83	First meeting of the Statistical Computing Group.
22/02/83	The CIPS APL SIG is meeting on Monday, March 23, 1983. (Data Base)

APL HOTNEWS may be accessed by loading the workspace, 1 HOTNEWS. For example, to print the news of November 28, 1982, type: NEWS '28/11/82'. To print all news items since October 1, 1982, type: NEWS SINCE '01/10/82'. For more instructions on the use of this workspace, please see the variable DESCRIBE.

Mary Ann Lawry

UTCS Users' Committee

The UTCS Users' Committee met on February 7 for its regular monthly meeting. The minutes are currently in preparation and will be circulated to all regular members as well as anyone else who wishes to examine them. As had been requested at a previous meeting, a brief summary of the SCRIBE evaluation was attached, and this led to some discussion as to the possibility or probability of obtaining this formatter for UTCS. Dr. Jackson made it clear that the future of this selection depended on the budget process. In response, the Committee requested an opportunity to see the annual plan proposed by UTCS to the Review Board. This plan is the corner stone of the budget process and the Committee's objective was to try and help formulate priorities.

This same topic was echoed by Professor Hummel in introducing a letter which he had written to all members of the Committee expressing grave concern about the services available to UTCS customers within the University. His concern was expressed as being a concern that the Review Board did not represent the interests of the University Academic community. The Users' Committee, while possibly representing the user's interests, seemed to be a voice which was not being heard by the appropriate bodies.

Discussion on this topic was extensive and resulted in the passing of two motions. The first reaffirms that the Users' Committee feels that it is the appropriate group to consider the needs and desires of users, and the Users' Committee should be given the options comtemplated by UTCS with the opportunity to make recommendations directly to the Executive Committee for the University. The second motion was very much in concert with the first, but expressed regret that the Review Board had found itself making decisions without consulting the Users' Committee. These motions have been passed to the Review Board for their consideration.

The next meeting will take place on Monday, March 7, 1983 at 4:00 p.m. in the Galbraith Building, Room 202.

Frank Spitzer

Advising Corner

- **SAS:** Those users who are using PROC RECODE should be aware of some problems that they might encounter with this procedure. The options _numeric_, _character_, _allalpha_ will not work as suggested. The only option you can use is the following:

```
PROC RECODE;
RECODE _CHAR_ /CONVERT;
```

- When allocating datasets on the IBM system, you may receive a message to the effect NOT CATALOGED 2, or NOT CATALOGED 4, or NOT CATALOGED This indicates there is a problem with the allocation and you should consult an advisor or consultant at 978-HELP.
- As terminals get smarter and smarter, it is becoming easier and easier for new users to damage their data with bad invisible data. If you have a file that looks perfectly good on the screen but gives you error messages when run (check the syntax carefully) then you may have some bad characters in your file. Consider seeking help from an advisor or consultant at 978-HELP.
- Yet another way to get bad characters in your data has appeared. WYLBUR users

continued...

Advising Corner continued

should be careful of the SET BACK command. It allows you to insert a backspace character into your file. On the screen when you backup one character and retype it, it looks ok but really what is there is the bad character, a backspace character , then the correct character. When listed on the screen it happens so fast that all you see is the correct character. When executed, this usually dies horribly. To correct this the command CHANGE '<BS>' TO '#' IN 1/L will allow you to see them to correct them. <BS> stands for the backspace key (control h) and SET BACK must be in effect for this to work. The default SET NOBACK is best for most applications.

- DEC-10 users that bring tape files from other systems, card files from IBM, listings etc. will notice that they sometimes contain a lot of blanks at the end of the lines. These can be removed very quickly with a copy command. If a file FIXED.LOG has a lot of blanks then the command:

  ```
  COPY FIXED.LOG=FIXED.LOG/T
  ```

  will remove them. This makes editing them quicker and cheaper, makes reading them easier, and reduces the user's online disk storage charges.
- IBM Fortran users using the Gould plotter should be aware that when they terminate their plot using CALL PLOTND the message generated on their listing indicates VECTORS GENERATED 0. This indicates normal termination. Not getting this message indicates that the plot terminated abnormally OR it was terminated with a CALL PLOT(0.0,0.0,999) (a call to plot(999) is an acceptable termination of a plot)
- IBM batch users often check the condition codes for their job to see if it ran successfully. This is not sufficient to conclude that your job ran properly. In some cases the condition codes are not set by the program and may be junk, in other cases, the condition codes may all be zero, when really there is a catalog problem. When you run a batch job, use MSGLEVEL=(1,1), and check the condition codes, output messages, and information about cataloged datasets. Often we see users running a second job to use data that was created by a first job, but because the first job had a catalog error, the second job fails. When I use WYLBUR to submit jobs, and fetch the output into active, I use two list commands as an initial test to see that the job worked. I use

  ```
  LIST 'COND'
  ```

  to see if any condition codes were non zero, and

  ```
  LIST 'CATALOG'
  ```

  to see that there were no NOT CATALOGED 2 messages.
- If you don't register an IBM dataset residing on an online disk volume, it goes away.
- Users phoning the Central Advising Office (978-HELP) for assistance with an error message in their batch output should make the listing available to the advisor on duty. Save the output listing in a dataset that the advisor can look at. WYLBUR users can fetch and save the listing, TSO users can fetch it into a dataset directly, and DEC-10 users can retrieve the listing and save it in a unprotected dataset. The advisor should be told the dataset name, your userid or PPN etc.

Terry Jones
William Barek

DEC-10 Gripes

EAT Terminals Crowded

I object strongly to the smug tone of your replies to several recent gripes (not from me) about conditions at EAT. The problem here is that serious users are being flooded out from time to time by students. About half the terminals on the ground floor are reserved for student use ("LIBRA", whatever that is), while the rest can be used by anyone, including LIBRA users. There are no terminals reserved for research users anywhere on the campus. To suggest that busy users should traipse around the campus in the hope of finding an under-used site, probably without a fast printer available, is to shirk the responsibility. UTCS has to provide service in return for the money we pay (real dollars). To suggest that the same busy users should abandon their terminals (and move their papers presumably) every time they fetch output -- although they are paying for login time -- is so irresponsible that it is difficult to know how to get through to you. Too many UTCS personnel live in splendid seclusion in the Physics building and carry on in blissful ignorance of the realities of life for the customers who pay their salaries.

Answer

Your comments have been referred to me by the person who supplied the answers to which you refer. I am that person's Manager.

I regret that you interpreted the comments as smug. They are not intended to be smug but rather terse as is the nature of comments in the 'Gripe' file.

I must disagree with your implication that the work of students is not serious. It must also be pointed out that the 24 XT100 terminals in EAT were placed there *specifically to serve LIBRA students.* The direction to do this comes from a University wide committee, not UTCS. It has been agreed, however, that the 12 XT100's connected to the PACX may be used generally, as well as for LIBRA use. There are 4 terminals unsuited for LIBRA use which are intended for general access. UTCS is also intending to increase this number by 4 additional terminals. The terminals located in the Physics Terminal area are restricted to graduates, faculty, and staff use.

We certainly are not suggesting that users should traipse around campus. The suggestions made were intended to be helpful. It has been our observation that the terminals in the Research Facility (McLennan Physical Labs, Room 221) have not been heavily used and that individuals might consider this location. A high speed printing service is available through the central site one floor up.

Two issues should be clarified. Meetings of the University wide Research Access Group indicate that while researchers need more terminals, they wanted them to be supplied in a fashion which would distribute them to the researchers area of work. This finding seems to be borne out by the fairly light usage of the research terminal room which did exist in the Engineering Annex last year. Designated terminals made available to the University by IBM are currently being distributed to the research community. Again, the recipients are not determined by UTCS but by a University Committee.

The second issue relates to the allocation of terminal usage. The suggestion that users give up their terminals when retrieving output is well intentioned, though I can appreciate the reluctance to do so. The intention is that terminals be as fully used as possible. Though it is not mentioned, leaving a terminal which is signed on causes a security exposure to both your code, programs, and files. In short, we are not mandated nor capable of reasonably controlling who uses which terminal except in the most general fashion, i.e. certain terminals are restricted

continued...

Gripes continued

to specific services.

I have referred to UTCS receiving its direction from University Committees regarding the deployment of resources. We must accept these committees directions as indicative of the desires of the general populace of the University. While we welcome comments from individual users, we encourage these individuals to also make their comments known to the committees who serve to establish direction.

I trust that this reply provides you with information which is useful to you. While it may not relieve your frustrations, it reflects the reality of the situation and the amount of discretion we have over our operations.

Don Gibson,
Manager,
Applications Support and Advising.

Followup to Gripes on 1200 baud dialup access.

Answer

Management has examined the currently increasing usage of the 1200 baud dialup access modems and has approved adding two more modems to the existing three. These were in place in early February.

Please continue to keep us informed of any problems you encounter so we may investigate them.

A.Nishri

SFD Credir

Would it be possible to amend the SFD help file, giving directions on how to create an SFD, or at least to the proper HELP file for same?

I recently wasted much time trying to create one myself, only to be told after many attempts, with the wrong commands, that the proper one was R CREDIR. This could save others much annoyance.

Answer

Thank you for your suggestion.

We have added a line to HELP SFD pointing users who might encounter this problem to HELP CREDIR. As well, some changes were made to HELP CREDIR to make it more clear.

Incidently, it sounds like we could have saved you some frustration had you contacted us earlier. If you are encountering problems you can get assistance by phoning 978-HELP.

A.Nishri

FORTRAN Execution Runtime

Why does the DEC system end all FORTRAN executions today with the error '%FRSAPR Integer divide check at EXIT.+20 (PC nnnnnn)' and give a warning of a divide check? It has not done this before as far as I can tell.

Answer

The problem is that the system has now been up longer than it ever has been before without a reboot. (At the time this answer was being entered it had been up 268 hours.) The FORTRAN runtime routines, when printing the 'Elapsed time' for your program, use the system uptime clock. The large number obtained was unexpected in a division operation and hence the error. User program output was not changed by this problem.

The problem has now been corrected. Most programs will now run properly (even existing EXE files). Only if the old EXE file was loaded with the nonsharable object time system will the problem still be apparent. Such a program will need to be relinked. Most users will not have to do anything.

A.Nishri

Errata

Advising Corner Corrections

It was noticed that in the January/February *COMPUTERNEWS* #204 on page 30, the example of an infinite do loop had a number missing.

The correct line should have read as follows:

```
INPUT V W 5 @;
```

Micro System News

CP/M Users Group Disks

All 90 public domain CPMUG disks have finally arrived in the Microcomputer Lab. These diskettes contain software which may be copied without charge. However they will run only on micro computers using the CP/M operating system and 8" diskettes. Arrangements can be made to transfer programs to other sizes and formats of diskettes.

Meeting of IBM Personal Computer Users

The Campus IBM-PC Users' Group is regularly meeting at 4 p.m. on the last Tuesday of each month to discuss topics of mutual interest. The February meeting featured a talk by Mr. Glen Davis on communication between the IBM-PC and several of U of T's mainframe computers. Future topics include: APL on the IBM-PC and Hardware Add-ons.

Everyone on campus who is involved with or merely interested in the IBM Personal Computer is invited to join us. There are no membership requirements or dues. Until a permanent place is found, the meeting will be held in various locations each month.

Please call Grant Davis at 978-5071 for further information on either of the above items.

Grant Davis

Small Systems News

The Facilities Management PDP-11 Lab has a collection of RT-11 and RSX-11M software from DECUS Symposia and some programs from the DECUS Library. This software (preprocessors, games, utilities, and other programs) is available to all Lab account holders for copying. An index of the RT-11 software, and directories of the Symposium tapes can be consulted in the Lab. Contact John Roth (978-5045) or Teri Kusy (978-3787) for information. Note: if you are not a DECUS member, a membership form must be signed first. There is no charge for DECUS member-

continued...

Small Systems continued

ship.

We still have a few LSI-11/23 systems at bargain prices. (See the article entitled 'User Exchange' in *COMPUTERNEWS* #204, page 32.) These include an 8" winchester disk and an 8" floppy drive. We can provide the RT-11, RSX-11M or UNIX operating system for use with these systems. Please contact Luke Sulatycki at 978-4693 for information.

Ian F. Darwin

Change Committee

Users wishing to suggest changes should contact their Marketing Representative or Dr. Frank Spitzer, Manager of Consulting. Users should contact the Advising Office at 978-HELP if they encounter problems.

1. WYLBUR allocation procedures now issue warning messages to remind users that these procedures do not automatically register datasets.
2. UTCS is testing a telephone answering machine to improve service during unattended operation for the Academic machine console and the DEC-10 console.
3. Software on the Series/1 on the Academic machine was upgraded to Release EDX3.2, Yale 2.0 on January 10, 1983. Users may be unnecessarily prompted twice for terminal type with this new release.
4. The 1982 version of BMDP was installed on the Academic machine on January 10, 1983.
5. VM/SP Release 2 was installed on the 3033U16 on January 12, 1983.
6. The UNIX print load was moved from dedicated printers to the VAX machines at remote sites on January 3.
7. USERBOOK is no longer available by subscription.
8. UTCS plans to upgrade EMPIRE on the DEC-1090 to Version 3B.
9. The memory limit on the DEC-1090 has been increased to 300P during non-prime time.
10. CLASS A memory limit on the Academic machine was increased to 1 megabyte on February 7.
11. SPSS Release 9.1 was installed as the default release on the Academic machine on February 14.
12. NAg Mark 9 was installed as the default release on the Academic machine on February 14.
13. The May '82 release of SHARP APL will be installed in production on the Academic machine in June.
14. Expanded workspace 1 NEWRELEASE with May '83 release documentation for SHARP APL was installed on February 7.
15. UTCS plans to add new procedures to access VS/FORTRAN through GPJS (General Purpose Job Stream) on the Academic machine in March.
16. The WYLBUR logon code prefix character will be changed from a 'W' to a 'U' on Release 6 of WYLBUR during the Summer.

Cecilia Welch

Recent Acquisitions in the Computer Library

Association for Computing Machinery.
ACM guide to computing literature, 1980.

Augenstein, Moshe, and Tenenbaum, A.M.
Data structures and PL/I programming.
Prentice-Hall, 1979.

Barron, David W., ed.
PASCAL: the language and its implementation.
Wiley, 1981.

Beatty, John C., and Booth, K.S.
Tutorial: computer graphics. 2d ed.
IEEE Computer Society Press, 1982.

Canadian Standards Association.
Videotex/teletext presentation level protocol syntax (North American PLPS) - preliminary standard T500-1982.
C.S.A., August 1982.

Fishman, Katharine D.
The computer establishment.
Harper & Row, 1981.

Forester, Tom, ed.
The micro electronics revolution: the complete guide to the new technology and its impact on society.
MIT Press, 1981.

Godfrey, David, and Chang, E., eds.
The Telidon book.
Press Porcepic, 1981.

Goldschlager, Leslie M., and Lister, A.
Computer science: a modern introduction.
Prentice-Hall, 1982.

Grimson, William E.L.
From images to surfaces: a computational study of the human early visual system.
MIT Press, 1981.

International Computer Software and Applications Conference, 5th, Chicago, November 1981.
Proceedings.
IEEE, 1981.

Jackson, Michael A.
System development.
Prentice-Hall, 1983.

Johnston, Robert L.
TEAPACK users' manual: mathematical subroutines for numerical methods.
Wiley, 1982

Winograd, Terry.
Language as a cognitive process, v.1: syntax.
Addison-Wesley, 1983.

Wolberg, John R.
Conversion of computer software.
Prentice-Hall, 1983.

Stephanie Johnston

UTCS Terminal and Advising Sites

Names and Locations

- **Central Advising Office (CAO), 978-HELP,** McLennan Labs, 60 St. George St., Room 257
- **Education Facility (Educ),** McLennan Labs, 60 St. George St., Room 221
- **Engineering Annex (EAT, EUT, CDF),** 11 King's College Road, Rooms 103, 104, 107, 201, 203.
- **Erindale College (Erin), 828-5339,** Mississauga Road, Erindale Campus, Rooms 2005, 2039, 2045
- **New Physics (NPT),** Burton Tower, 60 St. George St., Room 1202
- **Robarts,** Robarts Library, 130 St. George St., Room 1061A
- **Scarborough College (Scar), 284-3122,** Military Trail, Scarborough Campus, Room S624
- **Sidney Smith (AST & ASUT),** 100 St. George St., Rooms 1071, 1073, 2105
- **Zoology (ZUT & ZAT),** Ramsey Wright Bldg, 25 Harbord St., Room 107
- **Victoria University (Vict),** 73 Queens Park Cres., Room 012.

	Hours of Operation				**Restrictions***	**Advising**
	Mon-Thurs	Fri	Sat	Sun		
AST	24 hrs/day	24 hrs	24 hrs	24 hrs	Research	Rm 2100
ASUT	24 hrs/day	24 hrs	24 hrs	24 hrs	BICS	No
CAO	10-6	10-6				Rm 257
CDF	24 hrs/day	24 hrs	24 hrs	24 hrs		No
EAT	24 hrs/day	24 hrs	24 hrs	24 hrs		Rm 106
Educ	9-5	9-5			Research**	CAO
(outer)	9-11	9-5			Research	CAO
Erin (2039)	9-9:30	9-4:30	12-5:30	12-5:30	Research	Rm 2005
(2045)	9-9:30	9-4:30	12-5:30	12-5:30	Undergrads	Rm 2005
EUT	24 hrs/day	24 hrs	24 hrs	24 hrs	Undergrads	No
NPT	24 hrs/day	24 hrs	24 hrs	24 hrs	Research (Key access)	CAO
Robarts	8:30-12	8:30-12	9-5	1-10	BICS	No
Scar	9-12	9-12	10-5		UNIX on CDF	Rm 627, 628A
ZAT	24 hrs/day	24 hrs	24 hrs	24 hrs	Research (Key access)	No
ZUT	9-9	9-5			Undergrads	No
Vict	7-11	7-11			BICS	

* Research includes graduates, faculty, staff.

** May be unavailable due to UTCS courses.

Advising Hours

CAO, AST/ASUT	Monday to Friday, 10 a.m.-6 p.m.
EAT	Monday to Friday, 1 p.m.-5 p.m.
Erin, Scar	During normal hours

Services Available

	BICS	Keypunch	LIBRA	PACX	Printers	Oracle	UNIX
AST		Y		Y	Y		
ASUT	Y				Y	Y	
CDF					Y		Y
EAT		Y	Y	Y	Y		
EUT		Y			Y	Y	
Educ				Y			
Erin			Y	Y	Y		Y
NPT		Y		Y	Y		
Robarts	Y				Y	Y	
Scar		Y	Y	Y	Y		Y
Vict	Y				Y	Y	
ZAT		Y			Y		
ZUT		Y			Y		

UTCS Systems

3033/N12 Processor

- located in McLennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR, APL and ATMS services
- 12 megabytes of memory
- MVS with JES2

3033/U16 Processor

- located in McLennan Physical Laboratories
- provides "Glass Keypunch" access to HSJS using BICS
- 16 megabytes of memory
- UTS under VM

4341 Mod II Processor

- located in McLennan Physical Laboratories
- provides administrative IMS/VS, DB/DC, Batch and TSO
- 8 megabytes of memory
- MVS with JES2

DECsystem-10 Model 1090

- located in McLennan Physical Laboratories
- provides General Purpose Time-Sharing
- 512 K - 36 bit words of memory
- TOPS-10 operating system, version 7.01

PDP 11/70

- located in McLennan Physical Laboratories
- provides UNIX text processing
- 640K of memory
- UNIX (Western Electric)

Communications and Field Service (CFS)

- located in Sandford Fleming Building, Fourth Floor (co-located with Facilities Management Lab)
- Micro Computing Lab has various Z80-based microcomputers (S-100, CP/M), IBM Personal Computer, Apple II Plus, Western Digital Pascal MicroEngine, Radio Shack TRS-80
- provides consulting and configuration of microcomputer systems
- offers media conversion services
- maintains copy of CP/M User Group library of public-domain software
- Communications Group provides communications systems, terminals, modems, data channels: consulting and installation.
- Field Service Group installs and maintains small computer systems on a contract basis or on a cost-per-call basis.

Facilities Management Group (FAC.MGT)

- located in Sandford Fleming Building, Fourth Floor (co-located with Communications and Field Service)
- PDP-11 Lab has DEC PDP-11/40 with GT44 Graphics with various disk and tape formats; numerous special peripherals; PDP-11/05 with GT40
- offers media conversion services
- develops custom software (RT-11, RSX-11M, UNIX)
- develops custom hardware
- provides specialized interactive graphics
- provides online and real-time computing services, data acquisition and conversion, and minicomputer services
- maintains copies of some DECUS public-domain software
- provides consulting on minicomputers; configures and installs minicomputer systems and hardware

VAX 11/780

- located in McLennan Physical Laboratories
- provides backup, program testing, and inter-communication relating to student services
- provides Spare Cycle Service
- 4 megabytes of memory
- VMS

Computer Disciplines Facility
VAX 11/750 (2 megabytes of memory)
VAX 11/780 (4 megabytes of memory)

- located in Engineering Annex
- provides Computer Science interactive access
- UNIX (Berkeley)

Scarborough System
VAX 11/750

- located at Scarborough College
- provides "Glass Keypunch" access to HSJS using LIBRA
- 2 megabytes of memory
- VMS

Erindale System
VAX 11/780

- located at Erindale College
- provides "Glass Keypunch" access to HSJS using LIBRA and Research access
- 4 megabytes of memory
- VMS

Consulting and Enquiries

Internal Users Marketing	Dr. Bill Fehlner	MP217	6509
External Users Marketing	Ihor Prociuk	MP217	6875
Erindale College	Peter Wall	2043	828-5311
Scarborough College	Bob Blackburn	S628-A	284-3173

General Enquiries	4990	System Status Enquiries (DEC)	4318
Programming Advising	HELP	System Status Enquiries (IBM)	7393
Access Codes	8703	300 Baud Interactive Services	6200
Account Enquiries (U of T)	8702	1200 Baud Interactive Services	3959
Account Enquiries (External)	7148	DATAPAC	4320 0056
Tape Library (Academic Services)	7319	Telenet	20477
Tape Library (Administrative Services)	6693	Tymnet	<backspace> DPAC;302043200056
U of T Computer Library	2987		

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User Accounting Services	William Murphy	MP345	4428

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